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Under the title of "The Railway Library 1909" are presented a number of papers and addresses of that year dealing with various phases of the transportation problem. The book is compiled and edited by Slason Thompson, manager of the bureau of railway news and statistics in Chicago. As much of the material so liberally supplied the public is hostile to the railroads, this presentation of their side of the story will be of special value to readers and students. Among the contributors may be mentioned J. Edgar Thomson, chief engineer of the Pennsylvania railroad company, James J. Hill, Senator John C. Spooner, etc.

For Tables of Contents—1909 and 1910 issues—see end of this volume

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APPLY TO

BUREAU OF RAILWAY NEWS AND STATISTICS

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CHICAGO

THE RAILWAY LIBRARY

1911

[THIRD SERIES]

A COLLECTION OF NOTEWORTHY ADDRESSES AND
PAPERS MOSTLY DELIVERED OR PUBLISHED
DURING THE YEAR NAMED.

COMPILED AND EDITED BY

SLASON THOMPSON

DIRECTOR OF BUREAU OF RAILWAY NEWS
AND STATISTICS
CHICAGO

CHICAGO
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INTRODUCTION

THE issue of the *Railway Library for 1911* follows the general scheme of its predecessors in bringing between boards selections from the noteworthy papers and addresses of the year relating to railway subjects. In order to preserve a just appreciation of what American railways have meant to the social, industrial and political life of this continent, it has been deemed well to present extracts from the experiences of Charles Butler, financier and philanthropist, in making a journey from the East to Chicago in 1833.

As a companion picture to this, a brief review of British railways by S. M. Phillp is reprinted from the *Railway and Travel Monthly*. The contrast between the conditions confronting and inspiring the railway builders of the two countries eighty years ago cannot be overlooked in any study of the railway problems of to-day. In Great Britain, the traffic of a congested civilization awaited transportation; in the United States, transportation was needed to reclaim almost unpeopled territories for the uses of civilization. There the railway displaced other common carriers; here it was the "pioneer of peoples yet to be."

Following these retrospects of four score years ago, it has been deemed timely to reprint the first report of the Interstate Commerce Commission, written by Judge Thomas M. Cooley, its first chairman. This remarkable exposition of the Act to Regulate Commerce, even more than the Act itself, may be said to have indicated the lines along which railway regulation on this continent was to proceed. For broad comprehension of the vast potentialities involved, for judicial equipoise and statesmanlike appreciation of the necessities and difficulties involved in federal

regulation of railways, it stands unsurpassed in the literature of railways. It is as authoritative to-day as when written, except where conditions and the law itself have been changed.

Supplementing the views of Judge Cooley, written in the twilight days of regulation, the *Railway Library for 1911* presents recent utterances of Chairman Prouty and Commissioner Lane of the Interstate Commerce Commission, and Judge Knapp of the Court of Commerce, for many years chairman of the Commission, which bring the discussion from the official regulators' point of view down to date.

The report of the Securities Commission appointed by President Taft, and headed by President Hadley of Yale, naturally finds space in the *Library for 1911*, as of the highest contemporaneous interest. The report of Professor Swain, the engineer in charge of the valuation of the New York, New Haven & Hartford Railroad, should be read in connection with the Hadley report.

The question of government ownership of railways is discussed in several papers and light is shed on their operation under it in France by an article by a distinguished French advocate.

The latest information available for the railways of the United States, and also of the world, is given in the concluding chapter of *The Railway Library*.

The table of contents on the preceding page testifies to the wide field from which it has been gleaned.

S. T.

CHICAGO, June 10, 1912.

TRAVEL FROM DETROIT TO CHICAGO IN 1833

(Extracts from Francis Hovey Stoddard's *Life and Letters of Charles Butler, Financier and Philanthropist*—Chas. Scribner's Sons, 1903.)

In January, 1833, Mr. Butler, then scarcely thirty years old, and living at Geneva, N. Y., while visiting Mr. Arthur Bronson in New York City, made a plan for the two friends to explore the western country as far as Fort Dearborn, to study its possibilities. The synopsis of the story of their trip, as told by Mr. Stoddard, then proceeds: Mr. Robert A. Kinzie, whose name has since become part of the topography of Chicago, came soon after to New York for his yearly purchase of goods for the Indians. Mr. Kinzie maintained that a large town would yet be built on the site of the little village near Fort Dearborn, which is now the city of Chicago. This seemed rather an extravagant proposition, but one worth considering, and in the following June Mr. Butler started, in company with Mr. Arthur Bronson, for a journey to the western wilds.

In 1833, Detroit was really an outpost of civilization, to which the little steamer *Superior* ran on Lake Erie from Buffalo, making the distance in a little more than two days. It was an old French settlement, just emerging into the status of an American town. It had a social charm from the old French residents, whose courtesies made the visit a delightful one. Hospitality and kindness were shown on every hand. One of his friends even offered to Mr. Butler his pet saddle horse for the long journey to Fort Dearborn. Three distinct social conditions were in evidence—the cultivated French residents, the frontier military force, and the drunken, half-civilized, wholly impossible Indian natives. Black Hawk, the Indian chief, came with them on the steamer and talked with them sadly of the future of his people. Of interest also was the quick-coming growth which seemed in sight. Before the march of civilization the Indians must go, and even the French. The travelers noted "several handsome old French houses standing in the centre of the town and in the way of improvement."

Beyond Detroit, to the northward and the westward, stretched a wilderness. Northward, as far as Fort Gratiot at the foot of

Lake Huron, travel by water could be carried on somewhat uncertainly. Our travelers made this journey in a dilapidated steamboat, which broke down, and returned in a still more dilapidated schooner, making the trip of eighty miles each way in a little less than a week. Westward there was no regular means of communication and they took saddle horses to Fort Dearborn. The journey of three hundred miles from Detroit to Fort Dearborn was considered rather an adventurous one for travelers who were neither Indian traders nor pioneers accustomed to hardships. The route was by the old Indian trail, which crossed the southern portion of the territory of Michigan southwesterly from Detroit through the village of Ypsilanti to White Pigeon Prairie, thence through South Bend and La Porte Prairie to Michigan City, thence sixty miles along the shore of the lake to Fort Dearborn. The journey was to occupy fully ten days, and elaborate preparations were made. Arthur Bronson and Charles Butler rode Indian saddle ponies, and a young man named Gohlson Kercheval, who had been connected with the Indian agency at Fort Dearborn, went with them as guide, cook, companion and commissary agent, in charge of a two-pony wagon which contained the supplies and provisions. The trail wound across the prairies through noble groves of forest trees and by the margins of beautiful lakes.

"If you have never seen a prairie," wrote Mr. Butler, "it is utterly impossible for me to convey to you any idea of the peculiar and interesting aspect which it presents. The White Pigeon Prairie is an expanse of about fifteen thousand acres, skirted or encircled with a dense and noble forest of timber, which is to it like the frame of a picture. In looking off upon a landscape like this, one feels the sentiment of the Psalmist when he exclaims: 'The works of the Lord are very great, and sought of all them that have pleasure therein.'"

In the midst of this prairie the travelers found the little village of White Pigeon with a population of nearly two hundred and fifty persons, where three years before was only a solitary desert. Here they spent Sunday and found a flourishing little Sunday School. In traveling to White Pigeon they passed a great many small lakes, from one to five miles in length, surrounded by the native and luxuriant forest, which were delightful and cheering to the weary travelers. The banks were generally sloping to the water, which was pure and clear as crystal and abounding with fine fish. In imagina-

tion they selected many a site for a country seat on the margin of a lake. There were fifty lakes in St. Joseph county alone, covering from one to sixty acres of land, some of them having no visible outlet or inlet.

The country west of White Pigeon, between it and the head of Lake Michigan, was interesting and not much settled. It was a series of oak openings, prairies and dense forests. Beardsley's prairie, through which they passed, excited more admiration than any which they had yet seen; it formed a complete circle enclosed with a forest of oaks. "The surface of this prairie," wrote Mr. Butler, "is undulating and, therefore, to our eyes, more beautiful. If it were owned by a private gentleman, and he had exercised his taste in laying out the grounds and roads in view of combining the greatest attractions, he could not have made a more beautiful park than this." On the banks of the St. Joseph's river about twenty-five miles from its mouth, was the little village of Niles, then containing forty or fifty log houses. At this point the river was navigable for boats of considerable size, and it was throughout, they thought, one of the finest streams of water they had ever seen. Its shores were generally low, but not marshy, and the country through which it flowed enjoyed the reputation of being the best in the territory. On the opposite side of the river was then a reservation belonging to the Potawatamies. They passed through Indian villages built altogether of bark.

* * *

The most interesting tract, however, which the travelers saw was La Porte Prairie in Indiana.

"It was many miles in length and breadth," wrote Mr. Butler, "surrounded by dense woods. It gained its name because at one point the bordering forests converged from each side toward the centre, leaving an opening just wide enough for a passage, which, viewed from the east or west at a distance, appeared like a doorway cut through for the road. As one passed through this 'door' either way, the country expanded into a most magnificent prairie. Two miles east of the opening was the little village, fitly named La Porte." Three months before the travelers passed there was not a single house on the ground, where there were now more than twenty-five log buildings, including two stores.

They arrived at Michigan City late in the evening. There were but two buildings on this site, in one of which the "City Hotel,"

kept by General Orr, our travelers lodged. It was a small log house, with a single room, which answered the purpose of sitting room, eating room and sleeping room. In this twelve persons lodged, in beds and on the floor, including, of course, the host and his wife. There they met Major Elston, of Crawfordsville, who became the purchaser of the section of land on which Michigan City was laid out. He had just then completed a survey and map of the town, which he exhibited to them, and offered to sell lots. It was a great novelty, this map of Michigan City, and in the morning, when daylight came, the novelty was still more striking, for a more desolate tract of sand and barren land could scarcely be imagined. There was hardly a tree or a shrub to distinguish it, much less any house. Major Elston had become interested in it because it was the only place on Lake Michigan within the limits of the State of Indiana, where it might be possible at some future time to establish a commercial port in connection with the navigation of the lake. This distant vision of possibilities attracted his attention at this early day, and the survey and the map were the first steps towards its realization.

From this point to Chicago, about sixty miles, the trail followed the shore of the lake nearly the whole distance. There was but one stopping place on the way, and that was the house of a Frenchman named Bayeux, who had married an Indian woman. Here and there were Indian villages. At Calumet River, which was crossed on a float, there was an encampment of Potawatamie Indians, whose hammocks swung from the trees on the westerly side of the river. Aside from these natives, not one resident was to be found in the whole distance.

"I approached Chicago," wrote Mr. Butler, "in the afternoon of a beautiful day, the second of August, the sun setting in a cloudless sky. On my left lay the prairies, bounded only by the distant horizon like a vast expanse of ocean; on my right, in summer's stillness, lay Lake Michigan. I have never seen anything more beautiful or capitivating in nature. There was an entire absence of animal life, nothing visible in the way of human habitation, nothing to indicate the presence of man; and yet it was a scene full of life, for there, spread out before me in every direction, as far as the eye could reach, were the germs of life in earth, air and water. In these closing hours of day—so calm, so clear, so bright—I came to the realization of the objective point of my journey."

CHICAGO IN 1833.

But what was the Chicago to which, in this year 1833, the travelers had come with so much labor? A small settlement of a few hundred people, all told, most of whom had come within the last year or two. The houses, about twenty in number, were of the cheapest and most primitive character. A string of them, which formed the village, had been erected without much regard to lines on the south side of the Chicago River. Just above the junction on the west side of the south branch our travelers found lodgings in a tavern (afterwards known as the "Green Tree") which had been improvised for the entertainment of immigrants by James Kinzie. The building was not lathed and plastered; the partitions were made by blankets only, and free communication existed between all the rooms. Its eastern windows looked over the little village, past Fort Dearborn to Lake Michigan. To the west stretched three hundred miles of unbroken prairie. On the north, beyond the Chicago River, there was then but one building, known as the "Block House," though there had been a house near it occupied by Mr. Kinzie, the Indian agent, until its destruction by fire. The government, under the charge of Major Bender, had just entered upon some improvements at the mouth of the river for military purposes.

This was all the "Chicago" our travelers found; yet Charles Butler wrote:

"Chicago is a beautiful place. The north and the south branches of the Chicago River unite in the centre of the town and form a beautiful river flowing into the great and noble lake, as shown in the rough sketch which I enclose.

"The house at which I stay is on the point, and I look down upon the river which winds through the village to the lake. Vessels of the largest size can come up to the point in front of the tavern. The banks of the river are low, but dry. We cross from the tavern to the village in a dug-out canoe. The lake is one of the largest—larger than Erie or Ontario—and the water very clear. The lake, on the one hand, and the boundless prairie, on the other, seem to leave Chicago in the centre of a great ocean. If I were a young man (Mr. Butler was then thirty-one,) and unmarried, I should settle at Chicago. It presents one of the finest fields in America for industry and enterprise, and though at present a journey to this point is attended with great privation, fatigue, exposure, and difficulty, in a few years we shall think no more of going to Chicago

than we now think of going to Buffalo. There will be a line of steamboats, stages and railroads the entire distance from Albany to the Fort at St. Louis on the Mississippi, Chicago being an important and commanding point on this great thoroughfare."

Charles Butler had come just at the birth of the community. On Saturday, the tenth of August, a week after his arrival, Chicago became a town by vote of citizens and choice of officers. It is recorded that twenty-seven votes were given for, and one against, a town organization, almost all the voting citizens being present.

* * *

To the mind of Charles Butler the future of Chicago as a commercial centre was clear. In the little village of twenty houses and the swamp lands bordering the river, he saw the "germ of a city destined, from its peculiar position near the head of the lake, and its remarkable harbor formed by the river, to become the largest inland commercial emporium in the United States." His views were regarded at the time as visionary and absurd. "Your character is naturally sanguine," wrote his trusted friend and partner, Mr. Bowen Whiting, "and I fancy now that the 'Michigan fever' has fairly inflamed your brain; and were it not that Mr. Bronson partakes of your opinions, I should think you had written to me under the influence of a most flattering dream. I am a good deal in the condition of Rip Van Winkle after reading your letter, and am compelled to acknowledge that the world has gone a good way past me."

VICTORY OVER REPUDIATION IN MICHIGAN IN 1843.

How Mr. Butler came to make his second important excursion into the wild west is told further along, and is an important part of the railway history of the United States:

It will be a shock to some New Yorkers to be told that in 1843 the proper way to go from New York and Albany and the West, in the winter, was by way of Boston. One could go up the North River in summer, but the Hudson River Railroad had not yet been carried through. One could, indeed, go by boat to Bridgeport on Long Island Sound—fifty-five miles in six hours; thence by the new Housatonic Railroad to West Stockbridge—ninety miles—in seven hours; thence to Albany. Charles Butler first tried this route, but breakdowns and detentions stranded him at Bridgeport. So he spent the Sunday quietly there and then came back to New York

and started again, taking the boat meekly for Boston, about twenty-four hours' journey, and thence going to Albany by rail. Beyond Albany it was rail to Rochester; then to Niagara by stage; then across the river on the ice, and so on by stage and cart through Canada to Detroit. Writing to little Ogden, he told the story in light-hearted fashion:

"On the way to Detroit I rode nearly two hundred miles in an open wagon night and day; and the last night we were out our wagon broke down about two o'clock in the morning and we had to walk a long way through a dreary country to a miserable log-house tavern of one room. There we had to wait till daylight and then take a dirt cart into Detroit. The driver put on two horses tandem before the cart and took me and another passenger with our luggage, which just filled it up, and we started on. The road was very rough and had during the night frozen hard, and the horses were very restless, not liking to draw such a strange kind of vehicle, so we 'rode in random,' as the driver said, fast as the horses could go, and the cart jumped about like a parched pea; and I expected every moment to be tipped out; and I thought I should die from the shaking and the laughing; and my fellow traveler, a Mr. Doughty, was almost killed by it; and the people stared and laughed when they saw us driving along in such style and at such a rate. But we got through safely and for that I am thankful, though I cannot help but feel homesick."

These were perils for a man not in robust health; but they were soon forgotten in the interest of the business for which he had come. He had a creative work in finance, as well as a persuasive work in morals, to accomplish. He came to Michigan prepared to urge the consideration of a problem which he was willing to believe was one that, as Mr. Schoolcraft said to him, "they had rather failed to solve than wished to evade." The State had legally issued these five millions of bonds, for which it had received less than three millions of dollars, and to represent which it had now unfinished railway lines producing no income. The entire valuation of the State of Michigan in 1843 was \$27,696,940, so that this debt, if paid in full, would require nearly one-fifth of the whole wealth of the State. The yearly taxation for State, county and township purposes was \$427,310, to which the interest on these bonds, if paid in full, would add \$300,000, making in all an intolerable burden.

At this time the new State of Michigan was in a wild condition, most of it covered with dense forests, requiring excessive labor to subdue it for productive use. The early settlers here, as in other new regions, came into it without capital, depending upon health and strength to make homes for themselves. From their scanty means they had to make all local improvements, and they had very little money to spare for the general purposes of the commonwealth. They had never expected to assume the State burden, for the railroads, it had been supposed, would pay at once the interest, and, in time, the principal of the bonds. "Now they were confronted," to quote again the words of Mr. Schoolcraft, "rather with the labor of Ixion than Sisyphus. It is the labor of a fixed and not of a changing position." It is not strange that the easy remedy of Repudiation seemed to them, as it had seemed to the people of Mississippi, the only way of escape.

* * *

The fight was won. To the struggling people of Michigan the taxation in prospect seemed an overwhelming burden. But, under the provisions of this law, the State regained financial stability. The issues of bonds, funded wisely by Charles Butler's bill on the basis of the values actually received, were honorably cared for. The Central Railroad was sold to a company for two millions of dollars, the Southern to another company for half a million, and the finances of the State have never since been in question. Of far greater value, however, to the Commonwealth and to the country was the victory gained for public honor and honesty.

BRITISH RAILWAYS EIGHTY YEARS AGO

BY S. M. PHILLP.

(In the *Railway and Travel Monthly*.)

There is abundant evidence that at this period (July, 1831) the one great difficulty experienced by those railways which had actually commenced operations was in obtaining an adequate supply of locomotive power. The fact is that the volume of traffic with which the railways found themselves called upon to deal, exceeded their most sanguine expectations, and there were no engineering firms in the country who were at this time capable of turning out engines fast enough to meet the rapidly increasing requirements of the railways. Robert Stephenson and Co., of Newcastle-on-Tyne, appears to have been the only firm which made a strenuous attempt to rise to the occasion, and even their capacity was taxed to the utmost to fulfill the demands made upon them. Thus, in July, 1831, we find the proprietors of the recently opened Bolton and Kenyon Railway appealing to the directors of the Liverpool and Manchester Railway to allow them to purchase the next locomotives to be turned out by Robert Stephenson & Co., instead of its going to the Liverpool and Manchester Railway, and with this request the Liverpool and Manchester directors complied, doubtless recognizing that the Bolton Railway would prove a valuable feeder to their own railway and should be encouraged in its development. Again, we find it reported, a few days later, that a new engine from Newcastle was completed and on its way, and it was even christened in anticipation the *Victory*, but it subsequently turned out that this engine had been shipped to America, which seems rather hard, seeing how badly engines were needed in this country.

At this early stage of engine building great difficulty seems to have been experienced in preventing the cotton in transit from taking fire owing to sparks from the engine chimneys. Thus, we find the Committee of Management interviewing enginemen, firemen and plate-layers, and investigating cases of fire, but the only remedy they were able to devise was more careful sheeting of the cotton and the appointment of special inspectors to see that this was done, especially before the wagons passed through tunnels where the danger was greatest. It was also ordained that no lights were to be

carried about in the warehouses unless they were enclosed in glass lanterns, which would be somewhat similar to the porter's hand lamps of today. The goods sheds of that period must have been gloomy places to work in at night, compared with the warehouses of the present age brilliantly lighted with powerful arc lamps.

On July 25th, 1831, the Warrington and Newton Railway commenced carrying passengers in connection with the Liverpool and Manchester Railway. It was arranged that the Warrington passengers should be conveyed in the Liverpool and Manchester Railway's coaches to and from Liverpool and Manchester respectively, paying the same fares as other passengers. As to parcels, it was agreed that the Liverpool and Manchester Railway should pocket all the money received for carriage on these at Liverpool and Manchester and that the Warrington company should, in like manner, appropriate the money received at Warrington. This primitive method of dividing the receipts was, perhaps, the only one available prior to the institution of the Railway Clearing House, 1842.

It was stipulated that not more than twelve first class and twenty-four second class passengers must be booked to and from Warrington by each of the Liverpool and Manchester trains, so that the still limited accommodation was jealously guarded.

A somewhat amusing arrangement was that, at this time, the members of the Committee of Management assembled at the offices in John Street, Liverpool, every other Thursday, being the engineers' pay days, to watch and check the expenditure in that department—clearly these energetic directors were strong believers in the maxim, "If you want a thing done well, do it yourself," and they were not disposed to leave much to their officers.

In July one of the omnibuses employed to convey passengers from the booking office in Dale Street, Liverpool, to the railway station at Crown Street, was accidentally upset, and the railway had to pay compensation to the passengers who were injured.

A man was fined £5 for designedly placing a large stone on the railway at Whiston, with intent to cause an accident, and he certainly appears to have been let off very lightly! A curious feature of this case was that a man employed on the railway at Rainhill was reported to have attacked and ill-treated one of the railway policeman because the latter refused to conceal the fact of the stone being placed on the line. The offender, however, was merely discharged.

With regard to the stage coach duty on the omnibus used in Liverpool to convey passengers to the railway (see page 527, Vol. II.), the contractor disclaimed liability, but was willing to pay a lump sum of £200 for the term of his contract. The directors were willing to accept this offer, but, in the meantime, the solicitor advised them that, on going further into the matter, he found there was no doubt that the railway was responsible for the duty.

The engine drivers employed on the Liverpool and Manchester Railway, were, at this time, paid not a weekly wage, but 1s. 6d. per trip, and with this rate they were not too well satisfied. It was accordingly decided that they should receive 2s. for each trip exceeding four per day. Thus, if a man worked five trips on the same day, he would receive 8s., not bad pay for those days, when probably money was worth more than it is now, but, no doubt, competent locomotive engine drivers were as yet scarce, and could command good pay.

It was decided that a book should be kept in which should be recorded all accidents involving personal injury to passengers or servants, with particulars of the circumstances to be ascertained by investigation. Precisely the same practice is adopted today on all railways.

About this time the engineer was asked to report as to the desirability of stationing a fixed engine at the top of the Whiston inclined plane, presumably to assist the trains in surmounting the gradient.

It will be borne in mind that it had been arranged for a carrying firm, called the "New Quay Company," to become carriers on the railway, finding their own rolling stock and performing all services on payment of 2d. per ton per mile on merchandise for "right of way" (see page 527, Vol. II.). The New Quay Company did not see their way to pay the toll demanded and so the negotiations fell through.

One of the directors called attention to the danger of fire in the Manchester warehouses owing to the use of *candles*, and the matter was referred to a Sub-Committee.

With regard to the proposed trial of Bury's engine (see page 527, Vol. II.), Mr. Bury protested (but unsuccessfully) against the decision of the directors not to allow Robert Stephenson & Co.'s engines to be loaded differently to the everyday practice for the purpose of comparison with his engine.

The Carriers' Act was not made applicable to railways until 1845, but apparently its principle was already taken for granted, for in June, 1831, a passenger made a claim on the Liverpool and Manchester Railway for £136 in money, contained in a missing article of luggage. The directors disclaimed liability, but agreed to give the unfortunate loser a donation of £50 as an "act of grace."

It was found that several of the workmen who were employed on Chat Moss were obliged to live some miles from their work, and it was decided to erect a few cottages for their accommodation. This seems to have been the first idea of a railway company building houses for their men, but, as is well known, railway companies are now some of the largest owners of house property in the country.

Turning now to the London and Birmingham Railway, we find that the Birmingham directors had still no direct communication from their London colleagues, but Mr. Creed, the Secretary of the London Board, had been in Birmingham, and had an interview with the Birmingham directors. My readers will remember (see page 440, Vol. II.), that, having regard to the valuable report Mr. Creed had made as to the deviations from the line of railway as originally surveyed at the Southern end, he had been authorized, with the concurrence of the Birmingham Board, to extend his examinations to the remainder of the undertaking, and he now reported that he had done so, and submitted his recommendations. His report is too lengthy a document for quotation, but it is a remarkable fact that although the firm of Robert Stephenson and Co. were the appointed engineers to the company, the railway should have employed its secretary, a layman, assisted only by a surveyor, to sit in judgment on the deposited plans, and suggest alterations and improvements designed to overcome opposition, and lessen the cost of the undertaking. Still more remarkable it is to note that the line of route suggested by him is, in the main, that taken by the London and Birmingham Railway as we know it today, and it certainly goes to show that Mr. Creed, although his name has not been handed down to fame amongst the early pioneers of railway enterprise, must have been an extremely able, clever and far-seeing man, whose labors are deserving of remembrance.

The directors were so much impressed by the results of Mr. Creed's inquiry, that they unhesitatingly instructed the engineers to prepare fresh levels and parliamentary estimates on the lines he had suggested. They were, at the same time, requested to report

as to the comparative advantages of an approach to Birmingham on the north side, as compared with one on the south side of the city, and as to the most eligible point of junction on the north side between the London and Birmingham Railway, and the projected Birmingham and Liverpool Railway.*

The directors of the St. Helens Railway, accompanied by their engineer, paid a visit of inspection to the works of the railway and dock, now well in hand, and ordered the construction of a "swivel" bridge over the canal at Pocket Nook, St. Helens, and two similar bridges over the Sankey Canal, near Widnes Wharf. This seems to be the first mention of a swivel or turning bridge in connection with railways.

*The Birmingham and Liverpool was opened in 1837.

FIRST REPORT OF THE INTERSTATE COMMERCE COMMISSION

By Judge Thomas M. Cooley.

Hon. Lucius Q. C. Lamar, Secretary of the Interior:

Sir: The undersigned, Commissioners appointed under "An act to regulate commerce," approved February 4, 1887, in discharge of the duty imposed by the twenty-first section of said act, which directs the Commission on or before the first day of December in each year to make a report to the Secretary of the Interior, to be by him transmitted to Congress, the report to "contain such information and data collected by the Commission as may be considered of value in the determination of questions connected with the regulation of commerce, together with such recommendations as to additional legislation relating thereto as the Commission may deem necessary," beg leave respectfully to report:

It is provided in the act referred to that its provisions shall apply to—

Any common carrier or carriers engaged in the transportation of passengers or property wholly by railroad, or partly by railroad and partly by water, when both are used, under a common control, management, or arrangement, for a continuous carriage or shipment from one State or territory of the United States or the District of Columbia to any other State or territory of the United States or the District of Columbia, or from any place in the United States to an adjacent foreign country, or from any place in the United States through a foreign country to any other place in the United States, and also to the transportation in like manner of property shipped from any place in the United States to a foreign country, and carried from such place to a port of trans-shipment, or shipped from a foreign country to any place in the United States and carried to such place from a port of entry either in the United States or an adjacent foreign country: *Provided, however,* That the provisions of this act shall not apply to the transportation of passengers or property, or to the receiving, delivering, storage or handling of property wholly within one State, and not shipped to or from a foreign country from or to any State or Territory as aforesaid.

It is further provided that—

The term "railroad" as used in this act shall include all bridges and ferries used or operated in connection with any railroad, and also all the road in use by any corporation operating a railroad, whether owned or operated under a contract, agreement, or lease; and the term "transportation" shall include all instrumentalities of shipment or carriage.

The railroad mileage of the United States, computed to the close of the fiscal year 1886, of the companies respectively, was 133,606. The number of corporations represented in this mileage was 1,425, but by the consolidation or leasing of roads the number of corporations controlling and operating roads as carriers was reduced to 700. It is estimated that 4,380 miles of road have been constructed since the foregoing statistics were obtained, making a total mileage at this time of 137,986. It is impossible to say with entire accuracy what is the number of railroad companies subject to the provisions of the act, but it is believed that not less than 1,200, operated by about 500 corporations as carriers, engage either regularly or at times in interstate commerce, so as to make the act applicable. The Commission has as yet no statistics of its own collection to lay before the public, but in a manual generally accepted as reliable, the cost of construction and equipment of the 133,606 miles of road is estimated at \$7,254,995,223, and the funded debt of the companies at \$3,882,966,330. Interest, according to the same authority, was paid by these companies for the last fiscal year to the amount of \$187,356,540, and the aggregate payment to stockholders in dividends was \$80,094,138.

Some idea of the magnitude of the interest which the act undertakes to regulate may be obtained from these figures, but they fall far short of measuring, or even indicating, its importance. The regulation of no other business would concern so many or such diversified interests, or would affect in so many ways the results of enterprise, the prosperity of commercial and manufacturing ventures, the intellectual and social intercourse of the people, or the general comfort and convenience of the citizen in his everyday life. The railroads provide for the people facilities and conveniences of a business and social nature which have become altogether indispensable, and the importance of so regulating these that the best results may be had, not by the general public alone, but by the owners of railroad property also, is quite beyond computation.

AUTHORITY FOR REGULATION.

The act to regulate commerce was passed under the authority conferred upon Congress by the Federal Constitution "to regulate commerce with foreign nations, among the several States, and with the Indian tribes," and in recognition of a duty which, though long delayed, had at length, in the opinion of Congress, become imperative. The reasons for the delay are well understood. When the grant of this power of regulation was made by the Constitution, the commerce between the States which might be controlled under it was quite insignificant, both in volume and value. It was for the most part carried on by means of coastwise vessels and by water craft of various kinds which were sailed, or otherwise propelled, on the lakes, rivers and smaller streams of the interior. On the land there was very little that could be said to rise to the dignity of interstate commerce, and the regulation of that little, as also of that which was exclusively State traffic, was for the most part left to the rules of the common law. The exceptional regulation, if any seemed to be called for, were made by the State laws. In a few cases, where persons had associated themselves together as regular carriers of persons on definite routes, exclusive rights were granted to them by the States as such carriers, the motive to such grants being a belief on the part of the State authorities that without the exclusive privilege the regular transportation would not be adequately and reliably provided for.

For the regulation of commerce on the ocean and other navigable waters, Congress very promptly passed the necessary laws; but its jurisdiction within the limits of the States was not very clearly understood, and it was not until the great case of *Gibbons v. Ogden*, decided in 1824, that it was authoritatively and finally determined that the waters of a State, when they constituted a highway for foreign and interstate commerce, are, so far as concerns such commerce, as much within the reach of Federal legislation as are the high seas; and consequently that exclusive rights for their navigation cannot be granted by States whose limits embrace them.

But while providing from time to time for the regulation of commerce by water, Congress still abstained from undertaking the regulation of commerce by land. The reasons for this continued to be the same as at the first. The land commerce was insignificant in amount, and the rules of the common law were in general found adequate to the settlement of the questions arising out of it.

The commerce of trappers and hunters, of traders with the Indians, or that of the early settlers in the wilderness needed only the most primitive modes of conveyance; the emigrant wagon in one direction, and the pack horse and canoe in the other, performed in respect to it the functions now performed by the railroad train and the steamboat. The use of such primitive instrumentalities required little regulation by either State or national law. When Congress provided for the Cumberland road as a great national highway, it was thought quite undesirable to regulate its use by national law or to take national supervision of the commerce upon it; and, with the commerce on the ordinary highways, it was left to the supervision and care of the States respectively through or into which the road should be built.

With the application of steam as a motive power for propelling vessels, the conditions were immediately, to a considerable extent, changed. An impetus was given to the internal commerce of the country which promised immense results, and which made immediate and imperative demand for other and very different highways to those which accommodated the pack horses and heavy wagons of the early traders and settlers. But even then the circumstances were favorable to a prolongation of State control. The first improved highways were turnpikes; the next in grade were canals; but the highways by water, as well as the highways by land, were provided for by the States. The General Government made some appropriations for canals where they were needed as improvements in existing navigation, but the great artificial channels of water transportation were State creations. Such was the case with the Erie Canal, which, during the period when emigration to the wilderness was greatest, and when improvement in the new territories was most rapid, constituted the most important of all the highways connecting the interior with the seaboard. Such also were the canals which were constructed to connect the Delaware with the Hudson, the Chesapeake with the Ohio, the waters of Lake Erie with the Ohio at Portsmouth, at Cincinnati, and at Evansville, the waters of Lake Michigan with the Mississippi, and many others now almost forgotten, but which were of great temporary importance and value.

As the States constructed these great interstate highways, it was not unnatural that they should be left in charge of the regulation of trade upon them, especially as no complaint was made that their

regulations were unjust, or that they discriminated unfairly as against the citizens or the business of other States. When, in 1830, steam power began to be applied to the propulsion of vehicles upon land, the same reasons as regards control continued to prevail. The roads constructed for such vehicles were authorized by and built under the authority of the States; the corporate charters under which they were operated, and which prescribed the rights, privileges, and powers of the associated owners were State laws; the States determined for them the measure of their taxation, and limited, if it seemed politic, their charges and their profits. The States thus touched them so nearly in all their interests and all their functions that Federal intervention seemed not only unnecessary, but intrusive, unless State power should be abused; and the abuse not often appearing, intervention was scarcely thought of by anyone.

For a long time, therefore, the power of the Federal Government in the regulation of commerce between the States was put forth by way of negation, rather than affirmatively; that is to say, it was put forth in restraint of excessive State power when it appeared, instead of by way of affirmative national regulation. The national restraint, when there was any, was commonly effected by invoking the action of the judicial department of the Government, and by its assistance arresting such State action as appeared to constitute an unauthorized interference with interstate traffic and intercourse. This special intervention, whether in the exercise of an original jurisdiction, as in the *Wheeling Bridge* case, reported in 13 Howard, 518, or under an appellate authority, as in *Ward v. Maryland* (12 Wallace, 418), and *Welton v. Missouri* (91 United States Reports, 275), has been important and useful in a considerable number of cases, but in the nature of things it could not accomplish the purposes of general regulation. On the other hand, the effect was to leave the corporations, into whose hands the internal commerce of the country had principally fallen, to make the law for themselves in many important particulars—the State power being inadequate to complete regulation, and the national power not being put forth for the purpose.

WHEN FEDERAL REGULATION BECAME NECESSARY.

The common law still remained operative, but there were many reasons why it was inadequate for the purposes of complete regulation. One very obvious reason was that the new method of

land transportation was wholly unknown to the common law, and was so different from those under which common law rules had grown up that doubts and differences of opinion as to the extent to which those rules could be made applicable were inevitable. A highway, of which the ownership is in private citizens or corporations who permit no other vehicles but their own to run upon it, bears obviously but faint resemblance to the common highway, upon which every man may walk or ride or drive his wagon or his carriage. If we undertake to apply to the one the rules which have grown up in regulation of the others, there must necessarily be a considerable period in which the state of the law will, in many important particulars, be uncertain, and while that continues to be the case, those who have the power to act and who must necessarily act by rule and according to some established system, will, for all practical purposes, make the law, because the rule and the system will be of their establishment.

Such, to a considerable extent, has been the fact regarding the business of transporting persons and property by rail.

Those who have controlled the railroads have not only made rules for the government of their own corporate affairs, but very largely also they have determined at pleasure what should be the terms of their contract relations with others, and others have acquiesced, though oftentimes unwillingly, because they could not with confidence affirm that the law would not compel it, and a test of the question would be difficult and expensive. The carriers of the country were thus enabled to determine in great measure what rules should govern the transportation of persons and property; rules which intimately concerned the commercial, industrial and social life of the people.

The circumstances of railroad development tended to make this indirect and abnormal law-making exceedingly unequal and oftentimes oppressive. When railroads began to be built, the demand for participation in their benefits went up from every city and hamlet in the land, and the public was impatient of any obstacles to their free construction, and of any doubts that might be suggested as to the substantial benefit to flow from any possible line that might be built. Under an imperative popular demand, general laws were enacted in many States which enabled projectors of roads to organize at pleasure and select their own lines, and where there

were no such laws, the grant of a special charter was almost a matter of course, and the securities against abuse of corporate powers were little more than nominal. For a long time the promoter of a railway was looked upon as a public benefactor, and laws were passed under which municipal bodies were allowed to give public money or loan public credit in aid of his schemes on an assumption that almost any road would prove reasonably remunerative, but that in any event the indirect advantages which the public would reap must more than compensate for the expenditures.

In time it came to be perceived that these sanguine expectations were delusive. A very large proportion of all the public money invested in railroads was wholly sunk and lost. Many roads were undertaken by parties who were without capital, and who relied upon obtaining it by a sale of bonds to a credulous public. The corporation thus without capital was bankrupt from its inception, and the corporators were very likely to be mere adventurers who would employ their chartered powers in such manner as would most conduce to their personal ends.

It is striking proof of the recklessness of corporate management that 108 roads, representing a mileage of 11,066, are now (1887) in the hands of receivers, managing them under the direction of courts, whose attention is thus necessarily withdrawn from the ordinary and more appropriate duties of judicial bodies. So serious has been the evil of bringing worthless schemes into existence and making them the basis for an appropriation of public moneys, or for the issue of worthless evidences of debt, that a number of the States have so amended their constitutions as to take from the Legislature the power either to lend the credit of the State in aid of corporations proposing to construct railroads, or to authorize municipal bodies to render aid, either in money or credit. State legislation has at the same time been in the direction of making compulsory the actual payment of a bona fide capital before a corporation shall be at liberty to test the credulity of the public by an issue of negotiable securities.

When roads were built for which the business was inadequate, the managers were likely to seek support by entering upon competition for business which more legitimately belonged to the other roads, and which could only be obtained by offering rates so low that if long continued they must prove destructive. A competitive

warfare was thus opened up in which each party endeavored to underbid the other, with little regard to prudential considerations, and freights were in a great many cases carried at a loss, in the hope that in time the power of the rival to continue the strife would be crippled and the field practically left to a victor, who could then make its own terms with customers. When the competition was less extreme than this, there was still a great deal of earnest strife for business, some of which was open and with equal offerings of rates and accommodations to all, but very much of which was carried on secretly, and then the very large dealers practically made their own terms, being not only accommodated with side tracks and other special conveniences, but also given what were sometimes spoken of as wholesale rates, or perhaps secret rebates, which reduced the cost to them of transportation very greatly below what smaller dealers in the same line of business were compelled to pay. Such allowances were sufficient of themselves, in very many cases, to render successful competition, as against those who had them, practically impossible.

The system of making special arrangements with shippers was in many parts of the country not confined to large manufacturers and dealers, but was extended from person to person under the pressure of alleged business necessity, or because of personal importunity or favoritism, and even in some cases from a desire to relieve individuals from the consequences of previous unfair concessions to rivals in business. The result was that shipments of importance were commonly made under special bargains entered into for the occasion, or to stand until revoked, of which the shipper and the representative of the road were the only parties having knowledge. These arrangements took the form of special rates, rebates, and drawbacks, underbilling, reduced classification, or whatever might be best adapted to keep the transaction from the public; but the public very well understood that private arrangements were to be had if the proper motives were presented. The memorandum book carried in the pocket of the general freight agent often contained the only record of the rates made to the different patrons of the road, and it was in his power to place a man or a community under an immense obligation by conceding a special rate on one day, and to nullify the effect of it on the next by doing even better by a competitor.

The system, if it can be called such, involved a great measure of secrecy, and its necessary conditions were such as to prevent effective efforts to break it down, though the willingness to make the effort was not wanting among intelligent shippers. It was of the last importance to the shipper that he be on good terms with those who made the rates he must pay; to contend against them was sometimes regarded as a species of presumption which was best dealt with by increasing existing burdens, and the shipper was cautious about incurring the risk. Nevertheless it was a common observation, even among those who might hope for special favors, that a system of rates, open to all and fair as between localities, would be far preferable to a system of special contracts into which so large a personal element entered or was commonly supposed to enter. Permanence of rates was also seen to be of very high importance to every man engaged in business enterprises, since without it business contracts were lottery ventures. It was also perceived that the absolute sum of money charges exacted for transportation, if not clearly within the bounds of reason, was of inferior importance in comparison with the obtaining of rates that should be open, equal, relatively just as between places, and as steady as in the nature of things was practicable.

Special favors or rebates to large dealers were not always given because of any profit which was anticipated from the business obtained, by allowing them; there were other reasons to influence their allowance. It was early perceived that shares in railroad corporations were an enticing subject for speculation, and that the ease with which the hopes and expectations of buyers and holders could be operated upon pointed out a possible road to speedy wealth for those who should have the management of the roads. For speculative purposes, an increase in the volume of business might be as useful as an increase in net returns, for it might easily be made to look, to those who knew nothing of its cause, like the beginning of great and increasing prosperity to the road. But a temporary increase was sometimes worked up for still other reasons; such as to render plausible some demand for an extension of line, or for some other great expenditure, or to assist in making terms in a consolidation, or to strengthen the demand for a larger share in a pool.

Whatever was the motive, the allowance of the special rate or rebate was essentially unjust and corrupting; it wronged the

smaller dealer, oftentimes to an extent that was ruinous, and it was very generally accompanied by an allowance of free personal transportation to the larger dealer, which had the effect to emphasize its evils. There was not the least doubt that had the case been properly brought to a judicial test, these transactions would in many cases have been held to be illegal at the common law; but the proof was in general difficult, the remedy doubtful or obscure, and the very resort to a remedy against the party which fixed the rates of transportation at pleasure, as has already been explained, might prove more injurious than the rebate itself. Parties affected by it, therefore, instead of seeking redress in the courts, were more likely to direct their efforts to the securing of similar favors in their own behalf. They acquiesced in the supposition that there must, or would, be a privileged class in respect to rates, and they endeavored to secure for themselves a place in it.

Personal discrimination in rates was sometimes made under the plausible pretense of encouraging manufacturers or other industries. It was perhaps made a bargain in the establishment of some new business or in its removal from one place to another that its proprietors should have rates more favorable than were given to the public at large; and this, though really a public wrong, because tending to destroy existing industries in proportion as it unfairly built up others, was generally defended by the parties to it on the ground of public benefit.

Local discriminations, though not at first blush so unjust and offensive, has nevertheless been exceedingly mischievous, and if some towns have grown, others have withered away under their influence. In some sections of the country if rates were maintained as they were at the time the interstate commerce law took effect, it would have been practically impossible for a new town, however great its natural advantages, to acquire the prosperity and the strength which would make it a rival of the towns which were specifically favored in rates, for the rates themselves would establish for it indefinitely a condition of subordination and dependence to "trade centers." The tendency of railroad competition has been to press the rates down, and still further down, at these trade centers, while the depression at intermediate points has been rather upon business than upon rates. In very many cases it has resulted in the charging of more for a short than for a long haul on the same line in the same direction, and though this has been justified

by railroad managers as resulting from the necessities of the situation, it is not to be denied that the necessity has in many cases been artificially created, and without sufficient reason.

The inevitable result was that this management of the business had a direct and very decided tendency to strengthen unjustly the strong among the customers and to depress the weak. These were very great evils, and the indirect consequences were even greater and more pernicious than the direct, for they tended to fix in the public mind a belief that injustice and inequality in the employment of public agencies were not condemned by the law, and that success in business was to be sought for in favoritism, rather than in legitimate competition and enterprise.

THE EVILS OF FREE TRANSPORTATION.

The evils of free transportation of persons were not less conspicuous than those which have been mentioned. This, where it extended beyond the persons engaged in railroad service, was commonly favoritism in a most unjust and offensive form. Free transportation was given not only to secure business, but to conciliate the favor of localities and of public bodies, and, while it was often demanded by persons who had, or claimed to have, influence which was capable of being made use of to the prejudice of the railroads, it was also accepted by public officers of all grades and of all varieties of service. In these last cases the pass system was particularly obnoxious and baneful, for if any return was to be made, or was expected of public officers, it was of something which was not theirs to give, but which belonged to the public or to constituents. A ticket entitling one to free passage by rail was often more effective in enlisting the assistance and support of the holder than its value in money would have been, and in a great many cases it would be received and availed of when the offer of money, made to accomplish the same end, would have been spurned as a bribe. Much suspicion of public men resulted, which was sometimes just, but also sometimes unjust and cruel; and some deterioration of the moral sense of the community, traceable to this cause, was unavoidable while the abuse continued. The parties most frequently and most largely favored were those possessing large means and having large business interests.

The general fact came to be that, in proportion to the distance they were carried, those able to pay the most paid the least. One

without means had seldom any ground on which to demand free transportation, while with wealth he was likely to have many grounds on which he could make it for the interest of the railroad company to favor him, and he was sometimes favored with free transportation not only for himself and his family, but for business agents also, and even sometimes for his customers. The demand for free transportation was often in the nature of blackmail, and was yielded to unwillingly and through fear of damaging consequences from a refusal. But the evils were present as much when it was extorted as when it was freely given.

These were some of the evils that made interference by national legislation imperative. But there were others that were of no small importance. Rates, when there was no competition, were sometimes so high as to be oppressive, and when competition existed by lines upon which the public confidently relied to protect them against such a wrong, a consolidation was effected and the high rates perpetuated by that means. In some cases the roads, created as conveniences in transportation, were so managed in respect to business passing or destined to pass over other roads, that they constituted hindrances instead of helps, to the great annoyance of travel and to the serious loss of those who intrusted their property to them. Then their rates were changed at pleasure and without public notification; their dealings, to a large extent, were kept from the public eye, the obligation of publicity not being recognized, and the public were therefore without the means of judging whether their charges for railroad services were reasonable and just or the contrary.

But the publications actually made only increased the difficulties. Railroad rates, difficult enough to be understood by the uninformed when printed plainly in one general tariff with classification annexed, became mysterious enigmas when several different tariffs were printed, as was the case in some sections; some relating to competitive points and others to what were called local points, and each referring to voluminous and perhaps different classifications, which were printed but not posted, and which were observed or disregarded at will in the rates as published. Such unsystematic and misleading publications naturally led to many overcharges and controversies, and naturally invited and favored special rates and injurious preferences.

These were serious evils; and they not only to some extent blunted the sense of right and wrong among the people and tended to fix an impression upon the public mind that unfair advantages in the competition of business were perfectly admissible when not criminal, but they built up or strengthened a class feeling and embittered the relations between those who for every reason of interest ought to be in harmony. It was high time that adequate power should be put forth to bring them to an end. Railroads are a public agency. The authority to construct them with extraordinary privileges in management and operation is an expression of sovereign power, only given from a consideration of great public benefits which might be expected to result therefrom. From every grant of such a privilege resulted a duty of protection and regulation, that the grant might not be abused and the public defrauded of the anticipated benefits.

The abuses of corporate authority to the injury of the public were not the only reasons operating upon the public mind to bring about the legislation now under consideration. Some other things which in their direct effects were wrongs to stockholders only had their influence also, and this by no means a light one. The manner in which corporate stocks were manipulated for the benefit of managers and to the destruction of the interest of the owners was often a great scandal, resulting sometimes in the bankruptcy and practical destruction of roads, which, if properly managed, would have been not only profitable but widely useful. This in its direct results might be a wrong to individuals only, but in its indirect influence it was a great public wrong also.

The most striking and obvious fact in such a case commonly is that persons having control of railroads have in a very short time, by means of the control, amassed great fortunes. The natural conclusion which one draws who must judge from surface appearances is that these fortunes are unfairly acquired at the expense of the public; that they represent excessive charges on railroad business, or unfair employment of inside privileges, and furnish in themselves conclusive evidence that current rates are wrong and probably extortionate. An impression of this sort, when it happens to be wide of the fact, is for many reasons unfortunate. It creates or strengthens a prejudice against all railroad management—the honest as well as the dishonest—which affects the public view of all railroad questions; it renders it more difficult to deal

with such questions calmly and dispassionately; it makes the public restive under the charges they are subjected to, even though they be moderate and necessary; it tends to strengthen a feeling among the unthinking that capital represents extortion. However careful, considerate, fair, and just the management of any particular road may be, and however closely it may confine itself to its legitimate business, it is impossible that it should wholly escape the ill effects of this prejudice which are visited upon all roads because some conspicuous railroad managers have by their misconduct given in the public mind a character to all.

Evils of the class last mentioned were difficult of legislative correction, because they sprang from the over-confidence of stockholders in the officers chosen to manage their interests, and whose acts at the time they perhaps assented to. But if capable of correction by any legislative authority, it was in general that of the States, not that of the nation. The States, in the main, conferred the corporate power, and it was for the States by their legislation to provide for the protection of the individual interests which were brought into existence by their permission. The National Government had to do with the commerce with these artificial entities of State creation might be concerned in. Nevertheless, the manifest misuse of corporate powers strengthened the demand for national legislation, and this very naturally because the private gains resulting from corporate abuse were supposed to spring, to some extent at least, from excessive burdens imposed upon the commerce which the nation ought to regulate and protect.

For the purpose of correcting the evils above alluded to, so far as it was constitutionally competent for national legislation to do so, the act to regulate commerce lays down certain rules to be observed by the carriers which are intended to be, and emphatically are, rules of equity and equality, and which, if properly observed, ought to, and in time no doubt will, restore the management of the transportation business of the country to public confidence.

THE ACT TO REGULATE COMMERCE.

The leading features of the act are the following:

All charges made for service by carriers subject to the act must be reasonable and just. Every unjust and unreasonable charge is prohibited and declared to be unlawful.

The direct or indirect charging, demanding, collecting, or receiving, for any service rendered, a greater or less compensation from any one or more persons than from any other for a like and contemporaneous service, is declared to be unjust discrimination and is prohibited.

The giving of any undue or unreasonable preference, as between persons or localities, or kinds of traffic, or the subjecting any one of them to undue or unreasonable prejudice or disadvantage, is declared to be unlawful.

Reasonable, proper and equal facilities for the interchange of traffic between lines, and for the receiving, forwarding and delivering of passengers and property between connecting lines is required, and discrimination in rates and charges as between connecting lines is forbidden.

It is made unlawful to charge or receive any greater compensation in the aggregate for the transportation of passengers or the like kind of property under substantially similar circumstances and conditions for a shorter than for a longer distance over the same line in the same direction, the shorter being included within the longer distance.

Contracts, agreements, or combinations for the pooling of freights of different and competing railroads, or for dividing between them the aggregate or net earnings, or any portion thereof, are declared to be unlawful.

All carriers subject to the law are required to print their tariffs for the transportation of persons and property, and to keep them for public inspection at every depot or station on their roads. An advance in rates is not to be made until after ten days' public notice, but a reduction in rates may be made to take effect at once, the notice of the same being immediately and publicly given. The rates publicly notified are to be the maximum, as well as the minimum, charges which can be collected or received for the services respectively for which they purport to be established.

Copies of all tariffs are required to be filed with this Commission, which is also to be promptly notified of all changes that shall be made in the same. The joint tariffs of connecting roads are also required to be filed, and also copies of all contracts, agreements, or arrangements between carriers in relation to traffic affected by the act.

It is made unlawful for any carrier to enter into any combination, contract, or agreement, expressed or implied, to prevent, by change of time schedules, carriage in different cars, or by other means or devices, the carriage of freights from being continuous from the place of shipment to the place of destination.

These, shortly stated, are the important provisions of the act which undertakes to prescribe the duties and obligations of the carriers which by its passage are brought under Federal control. Some important exceptions are made by the twenty-second section, which provides:

That nothing in this act shall apply to the carriage, storage, or handling of property free or at reduced rates for the United States, State or municipal governments, or for charitable purposes, or to or from fairs and expositions for exhibition thereat, or the issuance of mileage excursions, or commutation passenger tickets; nothing in this act shall be construed to prohibit any common carrier from giving reduced rates to ministers of religion; nothing in this act shall be construed to prevent railroads from giving free carriage to their own officers and employes, or to prevent the principal officers of any railroad company from exchanging passes or tickets with other railroad companies for their officers and employes; and nothing in this act contained shall in any way abridge or alter the remedies existing at common law or by statute, but the provisions of this act are in addition to such remedies.

These provisions, it will be seen, are not intended to qualify to any injurious extent the general rules of fairness and equality which the act has been so careful to prescribe, and the exceptions may all be said to be authorized on public considerations.

In the performance of its duties the Commission has had occasion to decide that the transportation of Indian supplies may be free, or at reduced rates under this section (1 Interstate Commerce Commission Reports, p. 15), as also may be that of the agents and material of the United States Fish Commission (*Ibid.*, p. 21). The question of what may be included under the exception made for charitable purposes has never come before the Commission in such form as to call for an expression of opinion. It will be noted that in terms it applies to property only, not to persons.

By the eleventh section of this act this Commission is created and established, and other sections prescribe its duties and powers.

Those sections it will be necessary to consider somewhat at length further on.

The Commission was organized March 31, 1887, and entered at once upon the discharge of its duties. The other provisions of the act took effect April 5, 1887. The demands upon its attention were immediate, and some of them of a very perplexing nature. It will be more convenient to take notice of these under specific heads in connection with the provisions of the act under which they were severally presented for its action.*

THE LONG AND SHORT HAUL CLAUSE OF THE ACT.

Another question presenting itself immediately on the organization of the Commission was that respecting the proper construction of the fourth section of the act, which, after providing:

That it shall be unlawful for any common carrier subject to the provisions of this act to charge or receive any greater compensation in the aggregate for the transportation of passengers or of like kind of property, under substantially similar circumstances and conditions, for a shorter than for a longer distance over the same line, in the same direction, the shorter being included in the longer distance,
proceeds to say—

That, upon application to the Commission appointed under the provisions of this act, such common carrier may, in special cases, after investigation by the Commission, be authorized to charge less for longer than for shorter distances for the transportation of passengers or property, and the Commission may from time to time prescribe the extent to which such designated common carrier may be relieved from the operation of this section of the act.

The provision against charging more for the shorter than for the longer haul under the like circumstances and conditions over the same line and in the same direction, the shorter being included within the longer distance, is one of obvious justice and propriety. Indeed, unless one is familiar with the conditions of railroad traffic in sections of the country where the enactment of this provision is found to have its principal importance, he might not readily understand how it could be claimed that circumstances and conditions could be such as to justify the making of any exceptions to the general rule.

*Here followed a discussion of express and sleeping car business.

It is a part of the history of the act that one house of Congress was disposed to make the rule of the fourth section imperative and absolute, and it is likely that in some sections of the country many railroad managers would very willingly have conformed to it, because for the most part they could have done so without loss, and with very little disturbance to general business. But in some other parts of the country the immediate enforcement of an iron-clad rule would have worked changes so radical that many localities in their general interests, many great industries, as well as many railroads, would have found it impossible to conform without suffering very serious injury. In some cases probably the injury would have been overbalanced by a greater good; in others it would have been irremediable. To enforce it strictly would have been, in some of its consequences in particular cases, almost like establishing, as to vested interests, a new rule of property.

A study of the conditions under which railroad traffic in certain sections of the country has sprung up is necessary to an understanding of the difficulties which surround the subject. The territory bounded by the Ohio and the Potomac on the north, and by the Mississippi on the west presented to the Commission an opportunity, and also an occasion, for such a study. The railroad business of that section has grown to be what it is in sharp competition with water carriers, who not only have had the ocean at their service, but by means of navigable streams were able to penetrate the interior in all directions. The carriers by water were first in the field, and were having a very thriving business while railroads were coming into existence; but when the roads were built the competition between them and the watercraft soon became sharp and close, and at the chief competing points the question speedily came to be, not what the service in transportation was worth, or even what it would cost to the party performing it, but at what charge for its service the one carrier or the other might obtain the business. In this competition the boat owners had great advantages; the capital invested in their business was much smaller; they were not restricted closely to one line, but could change from one to another as the exigencies of business might require; the cost of operation was less. But the railroads had an advantage in greater speed, which at some times, and in respect to some freight, was controlling.

In this competition of boat and railroad the rates of transportation which were directly controlled by it soon reached a point to

which the railroads could not possibly have reduced all their tariffs and still maintain a profitable existence. They did not attempt such a reduction, but on the contrary, while reducing their rates at the points of water competition to any figures that should be necessary to enable them to obtain the freights, they kept them up at all other points to such figures as they deemed the service to be worth, or as they could obtain. It often happened, therefore, that the rates for transporting property over the whole length of a road to a terminus on a water highway would not exceed those for the transportation for half the distance only to a way station not similarly favored with competition. The seeming injustice was excused on the plea of necessity. The rates to the terminus, it was said, were fixed by the competition and could not be advanced without abandoning the business to the boats. The greater rates to the local points were no more than was reasonable, and they were not by reason of the low rates to the competitive point made greater than they otherwise would have been. On the contrary, if the rates on the railroad were established on a mileage basis throughout, with no regard to special competitive forces at particular points, the effect in diminishing the volume of business would be so serious that local rates at non-competitive points would necessarily be advanced beyond what they are made when the competitive business can be taken also, even though the competitive business be taken at rates which leave little margin above the actual cost of movement. Such is the common argument advanced in support of the short-haul rates.

But the lower rates on the lower hauls have not been due altogether to water competition; railroad competition has been allowed to have a similar effect in reducing them. But as the railroad tariffs are commonly agreed upon between the parties making them, the necessity which controlled the water competition was not so apparent here, and to some extent the lower rates have been conceded to important towns in order to equalize advantages as between them and other towns which were their rivals, and to which low rates had been given under a pressure of necessity. But they were given also in many cases as a means of building up a long-haul traffic that could not possibly bear the local rates, and which consequently would not exist at all if rates were established on a mileage basis, or on any basis which, as between the long and short haul traffic, undertook to preserve anything like relative equality.

It would be foreign to the purposes of this report to discuss at this time the question whether in this system of rate-making the evils or the advantages were most numerous and important. Some of the evils are obvious; not the least of which is the impossibility of making it apparent to those who have not considered the subject in all its bearings, that the greater charge for the shorter haul can in any case be just. The first impression necessarily is that it must be extortionate; and until that is removed it stands as an impeachment of the fairness and relative equity of railroad rates. But on the other hand, it must be conceded that this method of making rates represents the best judgment of experts who have spent many years in solving the problems of railroad transportation; and its sudden termination without allowing opportunity for business to adapt itself to the change would, to some extent, check the prosperity of many important places, render unprofitable many thriving enterprises, and probably put an end to some long-haul traffic now usefully carried on between distant parts of the country. It is also quite clear that the more powerful corporations of the country, controlling the largest traffic and operating on the chief lines of trade through the most thickly settled districts, can conform to the statutory rule with much more ease and much less apparent danger of loss of income than can the weaker lines, whose business is comparatively light and perhaps admits of no dividends, and the pressure of whose fixed charges imposes a constant struggle to avoid bankruptcy.

If Congress intended this immediate change of system, it was not for the Commission to inquire whether the evils of making it at once would or would not exceed its benefits. The law must stand as the conclusive evidence of its own wisdom, and the authorities charged with enforcing it were not to question but to obey it. With the Commission, therefore, the first question was one of interpretation; and when it was clearly perceived what Congress intended, the line of duty was plain. The intent should be given effect, not only because it was enacted, but because in the enactment it was determined by the proper authority that the public good required it.

In coming to a consideration of the forth section of the act, it was immediately perceived that many different views were taken of it, some of which were settled convictions which were the result

of thought and reflection, while others were mere off-hand impressions and deserving of little attention. By some persons it was assumed that the Commission had by the act been given a general authority to suspend altogether the operation of the fourth section, and upon this utterly baseless and unreasonable assumption the Commission was plied with arguments in support of a general suspension. Other views went to the opposite extreme, and while holding that the general rule must be enforced in all cases until the Commission had sanctioned exceptions, would restrict the power to make exceptions to individual shipments made under circumstances and conditions which were special and peculiar. Such a restriction would obviously render the authority to make exceptions of no practical utility.

But among those who had given the subject thought and attention, and whose views for that reason were deserving of consideration, a most important difference of opinion was found to exist regarding the state at which the intervention of the Commission under the fourth section was to be invoked. By some persons it was believed that a rule was laid down by that section which could not lawfully be departed from until the Commission on investigation had determined that the circumstances and conditions of the longer and of the shorter transportation were so dissimilar as to justify making the greater charge for that which was the shorter, and had prescribed the extent of the permissible exception.

By others the fact was emphasized that the charging or receiving "any greater compensation in the aggregate for the transportation of passengers or of the like kind of property" "for a shorter than for a longer distance over the same line in the same direction, the shorter being included in the longer distance," was only declared by the section to be unlawful when both were "under substantially similar circumstances and conditions;" and they confidently affirmed that the carrier could require no order of relief from the Commission when the circumstances and conditions were in fact dissimilar, since the greater charge was not then unlawful and forbidden. This view would leave the carrier at liberty to act on its own judgment of the conditions and circumstances in any case, subject to responsibility to the law if the greater charge were made for the shorter transportation when the circumstances and conditions were not in fact dissimilar, unless authorized to make such greater charge by the relieving order of the Commission.

When the Commission was called upon in the performance of its duty to give an interpretation to this section, it was found on comparison of views that the interpretation last above mentioned seemed to all its members to be the one best warranted by the phraseology of the statute. Moreover, when it was considered how vast was the railroad mileage of the country, how numerous were the cases in different sections in which, for divers reasons, the general rule prescribed by the fourth section was then departed from, this interpretation seemed the only one which, in administering the law, would be found practical or workable. Possibly the Commission might therefore have been justified in making immediate announcement of this opinion.

It was not, however, believed to be wise to make such announcement at that time. The construction of a new statute having great remedial purposes in view ought not to be hastily made by the tribunal called upon to act under it. When a question of construction comes before the courts parties interested in taking different views are heard by counsel and if the case is important the court is likely to have all the considerations which support the several views presented, and will thus be fully informed when it comes to make a decision.

The Commission had not had the benefit of discussion by counsel of this most important provision. To delay, before taking any action whatever, until in the ordinary course of affairs a case should arise where the proper construction of the section should be the point in controversy, might be exceedingly injurious to many interests. Under these circumstances it seemed to the Commission that the prudent course, and the course most consistent with the general purposes the act was intended to accomplish, was to take such action as for the time being would disturb as little as possible the general business of the country, and at the same time give ample opportunity for full discussion and consideration of this most important question.

ACT TO CONSERVE AND PROTECT.

The act to regulate commerce was not passed to injure any interests, but to conserve and protect. It had for its object to regulate a vast business according to the requirements of justice. Its intervention was supposed to be called for by the existence of numerous evils, and the Commission was created to aid in bringing

about great and salutary measures of improvement. The business is one that concerns the citizen intimately in all the relations of life, and sudden changes in it, though in the direction of improvement, might in their immediate consequences be more harmful than beneficial. It was much more important to move safely and steadily in the direction of reform than to move hastily, regardless of consequences, and perhaps be compelled to retrace important steps after great and possibly irremediable mischief had been done. The act was not passed for a day or for a year; it had permanent benefits in view, and to accomplish these with the least possible disturbance to the immense interests involved seemed an obvious dictate of duty.

Acting upon these views, and in order to give opportunity for full discussion, the Commission, after having made sufficient investigation into the facts of each case to satisfy itself that a prima facie case for its intervention existed, made orders for relief under the fourth section, where such relief was believed to be most imperative. These orders were temporary in their terms, and in making them it was announced that sessions would be held in the section of the country to which a majority of these orders related, at which all parties interested in the questions they presented were at liberty to appear and present their views. Whatever view should ultimately be taken of the proper interpretation of the fourth section, this course could result in no serious injury. If the first impression of the Commission should be held to be correct, the orders would only sanction what might have been done without them, but if the opposite view should be taken they would only postpone for a time the strict enforcement of the fourth section, and give opportunity during that period for the business of the country to adapt itself as far as possible to the new requirement.

The considerations which were influential in determining when these temporary orders should be granted were not more the relief of the carriers from danger of loss than the prevention of threatened disturbance of business interests in certain localities, which by its reflex action seemed liable to embarrass seriously the entire country. When no great or special urgency was shown, connecting threatened injury to important interests with the literal enforcement of the section, or when the only showing made was of the loss of a certain line of traffic to one carried which nevertheless was

adequately served by being given another direction, temporary orders were not made. Fifty-eight petitions were filed for relief from the operation of the fourth section, some of which were joint; ninety-five railroad companies were petitioners; temporary orders were made in twenty cases, by the terms of which forty-three carriers were for a limited period and pending full investigation relieved from the operation of the section as to certain points enumerated in each order, where the charging of less for the longer distance was permitted to be continued for the time being.

The opinion of the Commission upon the applications for relief is herewith given in Appendix A. In the same appendix is given a list of the carriers petitioning and a statement of the action of the Commission on each case.

In finally announcing its conclusion, as it did on the petition of the Louisville and Nashville Railroad Company for relief, the Commission called the attention of the several carriers which had obtained orders to the desirability of revising their tariffs and bringing them more nearly into conformity with the general rule of the fourth section. The opinion was expressed that this revision was practicable without serious injury to the interests involved. This suggestion was acted upon by several of the petitioning carriers, and by a still greater number who had not petitioned for relief; and the Commission takes pleasure now in being able to report that in large sections of the country obedience to the general rule of the fourth section is without important exception. While before the passage of the act few lines operated as competitors for long-haul traffic could be found upon which the practice of the lesser charge for the longer haul did not exist, on a very large proportion of them all it has come to an end. This has in some instances been accomplished by raising the rates on through traffic, but in many cases where this was done the practical experiment resulted finally in a general reduction throughout the line. In other instances the lower rates on long-haul traffic were retained and the local rates reduced to the limit thus established. In still other instances a compromise course was pursued, the previous low rates at certain so-called competitive points being raised somewhat, and the local rates at intermediate points reduced sufficiently to be brought within the statutory rule. This last course was pursued upon some of the leading roads in the Southern States as to points to which it was in their power to control the rates made.

The process has been continually going on, and is still in progress. Tariffs are from time to time filed with the Commission showing a reconstruction of the rates in the direction of the rule laid down in the fourth section. The carriers making them sometimes protest that the rates are not voluntarily made, but only because the law so requires, and that they will involve large loss of revenue. The apprehension of loss in cases when the local and non-competitive rates are adjusted to the through rates, is, in some cases, supported by strong probabilities.

The transcontinental roads have not conformed to the general rule of the fourth section. By the managers of those roads it is contended that in view of the competition which they must meet, not only of ocean vessels but of the Canadian railways, it will be absolutely impossible for them to comply with the strict rule of the fourth section without surrendering a very large portion of their through business, and that such surrender will be equally ruinous to their own interest and to many other large interests on the Pacific coast. How far this contention is just, the Commission has as yet neither had the occasion nor found the opportunity for judging; but cases now pending in which the rates to interior points are complained of will soon receive attention, and the general question will probably to some extent be found involved.

Neither is it the case that the roads in the States south of the Ohio have come into general conformity with the rule of the fourth section. Some of them have greatly modified their tariffs in that direction; some profess compliance, while some insist that compliance is not possible without ruin. Of these, the case of the Louisville and Nashville Railroad Company may be taken as representative. In pending proceedings against that company for a violation of the fourth section it is frankly avowed by the company that its method of making rates has not been changed since the act was passed, and at the same time it is insisted that any considerable change is impossible. The local rates can not be reduced, it is said, because they are as low now as can be afforded unless competitive rates are raised, and to raise the competitive rates would be to abandon the business, which would then go to other carriers. It is farther insisted for the company that while it gives, as it is compelled to do, very low rates to competing points, the intermediate stations participate in the benefits, because their rates never exceed the rates to the competitive points with the local rates thence

to the intermediate stations added, and therefore every reduction to the competitive point causes a like reduction to the intermediate point also. This, as has been said, is the contention which the company makes in pending cases, and in support of which much evidence has been put in.

Some of the cases in which the strict rule of the fourth section is not applied are cases in which the longer hauls are made by circuitous routes, and the charges are necessarily made very low in order to meet the competition of more direct lines. The competition by these circuitous routes is in some cases hardly legitimate, and while it continues it constitutes a disturbing element in the general railroad business of the section. It is nevertheless thought by the local communities to be important, and there are probably some weak lines that would find it difficult to maintain a useful existence if not permitted to engage in competition for a business that would naturally fall to other lines. It happens in some of these cases that the lower charges on the longer hauls are only made lower because the points to which they are made are nearer by direct routes to the common market than the points to which the higher charges are made; and in such cases to compel the circuitous route to conform to the rule of the fourth section strictly would be to compel an abandonment of some portion of its business. If the direct lines to the common market give to the nearer point the lower rate, the circuitous line has no alternative but to do the same or to give up any attempt at competition.

The Commission has not as yet had occasion to decide a case which involved the construction of the fourth section in its application to traffic by these circuitous routes; the only case in which the question was made having been found, when the facts were examined, not to present it. (1 Interstate Commerce Commission Reports, p. 199.)

In some cases the lower rate on the longer line is a combination of rates over several lines; and it has been contended in some quarters that the fourth section only applies to cases in which the carrier who makes the greater charge for the shorter haul controls the line of longer haul, and makes the charge upon that also. The Commission does not take this view, but has decided in the case of the Vermont State Grange against the Boston and Lowell Railroad Co., and others (1 Interstate Commerce Commission Reports,

p. 158), that where a carrier unites with one or more others in making a rate for long-haul traffic, the rate so made constitutes a measure for the rates on short-haul traffic upon its own lines as much as it would if the long-haul transportation was on its line exclusively.

Where the practice of making the greater charge upon the shorter haul has long prevailed, the effect of its abrogation upon some portion of the business of the smaller cities of the country should perhaps be noted. Those cities have generally been in position to handle goods of all kinds, purchasing them at importing, manufacturing, and producing points, and reselling to retail dealers in the more immediate vicinity. The rates of freight have favored these distributing points, and have been so low that goods could be taken to them and sent forward after handling, or even returned for a certain distance over the same line, at a less aggregate rate of freight than the smaller places could obtain on the same goods from the same initial point. The ability to do this has developed very important business houses, and has largely controlled business methods in some sections of the country, but it no longer exists when the fourth section has been literally applied. The rate from the initial point to the given city—as, for example, from Baltimore or Philadelphia to Danville, Va.—added to the rate from that point to smaller points beyond, will then be more than the through rates from the initial point to the latter places, and at the same time the rate to the given city will be as great or greater than the rates to the intermediate points on the same line; and the natural effect is to depress the wholesale business at all such points and to throw the trade into the hands of metropolitan dealers. This fact is clearly seen in some of the cases now pending before the Commission. There are compensations for all such incidental injuries and the question involved being one of legislative policy, the Commission deems it sufficient to state the facts as they exist, without comment upon them.

The Commission, on October 20, caused a circular letter to be sent to the various carriers subject to the provisions of the act throughout the United States, inquiring concerning the practical application of the fourth section in making tariffs in use upon the lines of each respectively. The circular has been very generally answered, and the replies give full information in respect to the manner in which the provisions of the “long and short haul” clause

are now being observed by the carriers. A very large number of railroad companies, lines, and systems, answer unequivocally that there are no points upon their respective lines to or from which interstate rates for passengers or freight are greater than to or from more distant points in the same direction over the same line. Others, slightly misapprehending the inquiry made, state that no such instances exist upon their own roads, but that joint tariffs are made by them to points upon other roads where variations from the rule exist. Still others state the points upon their lines which are exceptionally treated, and give the reasons which are claimed to justify them in the rates made.

The statements and explanations of the different companies so far as they are other than a simple negative reply, present the situation so clearly and directly, from the standpoint of the carriers, and show so distinctly the various circumstances and conditions found in different parts of the country which are claimed by them to affect their traffic to an extent unwarranting a departure from the letter of the statutory rule, that the Commission has determined to lay the entire series before Congress as an appendix to this report. This appendix, which is marked E, contains the following documents:

I. Circular letter to carriers of October 20, 1887.

II. List of carriers which reply that they do not make interstate rates where a greater sum is charged for a shorter than for a longer distance in the same direction over the same line, to or from any point on their respective roads.

III. Letters and documents from carriers which accepted the invitation of the Commission to make a statement concerning the circumstances and conditions of traffic which they claimed made their case exceptional.

Reviewing railway operations during the period which has elapsed since the act took effect, the Commission feels warranted in saying that while less has been done in the direction of bringing the freight tariffs into conformity with the general rule prescribed by the fourth section than some persons perhaps expected, there has nevertheless been a gratifying advance in that direction, and there is every reason to believe that this will continue. That substantial benefits will flow from making the rule as general as shall be found practicable can not be doubted; and even when the circumstances and conditions of long and short haul traffic are dissimilar, the desirability of avoiding any considerable disparity in

the charges is great and obvious. So far, therefore, and so fast as business prudence and a proper regard to the interests of the communities which would be disturbed and injured by precipitate changes will admit of its being done, such railroad companies as do not now conform to the statutory rule should make their rates on these two classes of traffic more obviously just and more proportional than they have hitherto been or now are.

IV. GENERAL SUPERVISION OF THE CARRIERS SUBJECT TO THE ACT.*

It is provided in the twelfth section of the act—

That the Commission hereby created shall have authority to inquire into the management of the business of all common carriers subject to the provisions of this act, and shall keep itself informed as to the manner and method in which the same is conducted, and shall have the right to obtain from such common carriers full and complete information necessary to enable the Commission to perform the duties and carry out the objects for which it was created; and for the purposes of this act the Commission shall have power to require the attendance and testimony of witnesses, and the production of all books, papers, tariffs, contracts, agreements, and documents relating to any matter under investigation, and to that end invoke the aid of any court of the United States in requiring the attendance and testimony of witnesses and the production of books, papers, and documents under the provisions of this section.

This is a very important provision, and the Commission will no doubt have frequent occasion to take action under it. It will not hesitate to do so in any case in which a mischief of public importance is thought to exist, and which is not likely to be brought to its attention on complaint of a private prosecutor. There is every reason to believe, however, that some of the most serious evils which were notorious in the railway service before the passage of the act, and were in the legislative mind as reasons for its enactment, have now almost ceased to exist. One of these was the giving of special and secret rebates. These were exceedingly common before the act, and constituted one of the readiest means of making unjust discrimination. No provision in the act to regulate com-

*III Treats of "The Filing and Publication of Tariffs."

merce is more important than that which forbids them. But among all the complaints made to the Commission not one has charged a specific act in violation of this provision, and where a disregard of it has been suggested it has been by way of formal charge and as an expression of suspicion only.

In the litigated cases which have come before the Commission involving an examination into railroad practices at important centers, there has been entire agreement in the proofs that special rates to individuals and secret rebates were no longer made; a single exceptional instance only has come out in the proofs. Their condemnation by the law and the provision made for their detection and punishment have brought about this result. Further evidence in the same direction is furnished by the complaints of those who formerly had them that the law injuriously affects their business; but these complaints, which are aimed at the justice and equity of the law, the public may bear with equanimity, satisfied that in this particular at least substantial benefit has come from its enactment.

Complaints of unjust discrimination and the giving of undue and unreasonable preferences by the open rates are still frequent, and it is not to be denied that in the existing tariffs there are many rates which, as compared with others made by the same carriers, seem to be unfair and oppressive. But even as regards this species of injustice, the good effects of the law are manifest. For whereas formerly the carriers made discriminations at pleasure, and gave preferences for which their own interest or convenience was deemed sufficient reason, the discriminations or preferences which are now complained of are such as the carriers understand they may be called upon to defend, and they are aware that the defense, to be successful, must be based on grounds of substantial justice, or at least on grounds not palpably untenable. This necessity for defending the discriminations made may be expected to reduce very considerably their number, and has already done much toward bringing about more just proportions in the classification and rating of property transported.

In the performance of its duty of supervision, the Commission has found it necessary to conduct a very extended and voluminous correspondence, which could not be presented in this place even in abstracts. A few letters from the Commission which laid down rules, or were of more than individual importance, are, however, given in an appendix hereto, marked C. In connection with these

letters, attention is called to the decision made by the Commission in the case of *The Vermont State Grange v. The Boston and Lowell Railroad Company et al.*, that the railroads who unite in fast-freight lines are responsible for their rates, and bound to see that the tariffs are properly filed.

IX. CLASSIFICATION OF PASSENGERS AND FREIGHT.*

A number of the complaints made against railway companies have related to the classification of freight. Some of these have sprung from the fact that classifications are not alike in different sections of the country, and parties who have shipped freight under one classification into a section where a different classification prevails have found the charges against them not the same as they had reason to expect. The ground of others has been that the classification in its effect upon rates worked an unjust discrimination between shippers or between different classes of freights.

It is greatly to be regretted that the same classification is not adopted by the carriers by rail in all sections of the country. The desirability of uniformity is so great, that the suggestion is frequently heard that national legislation should provide for and compel it. If such legislation should be adopted it would be necessary to empower some tribunal to make the classification, and the difficulties which would attend the making would be very great. Relative rates would be involved in it, for classification is the foundation of all rate-making. It was very early in the history of railroads perceived that if these agencies of commerce were to accomplish the greatest practicable good, the charges for the transportation of different articles of freight could not be apportioned among such articles by reference to the cost of transporting them severally, for this, if the apportionment of cost were possible, would restrict within very narrow limits the commerce in articles whose bulk or weight was large as compared with their value.

On the system of apportioning the charges strictly to the cost, some kinds of commerce which have been very useful to the country, and have tended greatly to bring its different sections into more

*Omitted for lack of contemporaneous interest.

V. Relating to Complaints to and Adjudications by the Commission.
 VI. Relating to proceedings before the Commission.
 VII. Relating to Expense of Hearings.
 VIII. Relating to Annual Reports from Carriers.

intimate business and social relations, could never have grown to any considerable magnitude, and in some cases could not have existed at all, for the simple reason that the value at the place of delivery would not equal the purchase price with the transportation added. The traffic would thus be precluded, because the charge for carriage would be greater than it could bear. On the other hand, the rates for the carriage of articles which within small bulk or weight concentrate great value would on that system of making them be absurdly low; low when compared to the value of the articles, and perhaps not less so when the comparison was with the value of the service in transporting them.

It was, therefore, seen not to be unjust to apportion the whole cost of service among all the articles transported, upon a basis that should consider the relative value of the service more than the relative cost of carriage. Such method of apportionment would be best for the country, because it would enlarge commerce and extend communication; it would be best for the railroads, because it would build up a large business, and it would not be unjust to property owners, who would thus be made to pay in some proportion to benefit received. Such a system of rate-making would in principle approximate taxation; the value of the article carried being the most important element in determining what shall be paid for it.

Accordingly, and for convenience and certainty in imposing charges, freight is classified; that which comes in one class being charged a higher proportional rate than that which is placed in another. But other considerations besides value must also come in when classification is to be made. Some articles are perishable, some are easily broken, some involve other special risks in carriage, some are bulky, some especially difficult to handle, and so on. All these are considerations which may justly affect rates, and therefore may be taken into account in classification. But still others have been found potent. Every section of the country has its peculiar products which it desires to market as widely as possible, and is not unwilling that classification should be made use of by the railroads which serve it as a means of favoring and thus extending the trade in local productions; favoring them by giving them low classification and thus low rates, and discriminating

against those of other sections through a classification which rated them more highly.

It has been in the power of every railroad to have a classification of its own; but the necessities of an interchange of business have brought about agreements, and the railroad associations have been given the authority to make classifications for all their members. Their labors in this direction have been extremely important and useful; they have been steadily reducing the number of different classifications in the country, and steadily approaching a condition of things in which there will be one only. But in these associations, when in session for the making of rates, each railroad official has, to some extent, had the district which was served by his road behind him; he has felt the pressure of the interests there, and contended for them as against the interests in classification represented by others, not only because it was desirable that the road should favor the policy its patrons favored, but also because the same policy was likely to be beneficial to both.

The result necessarily is that a classification made by a railroad association represents a series of compromises, to which not only the railroads are parties, but in a certain sense business interests and sections of country also; these in many cases being admitted by their representatives to the consultations upon a subject so vitally concerning their interests, and allowed to present their views. This contention of interests still continues to go on in the meetings and conferences, but with a steady tendency in the direction of one uniform classification, and there is reason to hope that without much further delay all classifications will be brought into harmony. If any other tribunal were to be given the authority to make classification, it must, if it would exercise its power wisely, proceed in much the same way; it must act deliberately, give all interests an opportunity to be heard, take into account all the considerations which ought to bear upon it; cost of service, interest of sections, equity as between industries and between classes of persons, and so on indefinitely.

Whether, therefore, the steady tendency in the direction of one uniform classification would be hastened by conferring the power to make one on a national commission is not entirely certain. The work, if taken up anew, would be one requiring much time for its proper performance; it would involve a careful consideration of

the interests peculiar to different sections of the country, and a close study of the conditions of railroad service as they bear upon such interests. But these conditions change from month to month; the classification cannot be permanently the same, but must be subject to modification on the same grounds on which it was originally made; the appeals for modification would be as numerous as they would be perplexing, because of the diversity of reasons on which they would be grounded. Under the law as it now is the Commission has appellate powers to correct any unjust classification, and it will keep in view the desirability of general uniformity and do what it properly can to bring about that result.

The classification of passengers has to some extent been a subject of complaint to the Commission. Some carriers as a rule have but one rate of passenger transportation, and but one class of passengers, except as they may be carriers of emigrants in considerable bodies, and they have emigrant rates which are lower than those given to other persons, and the emigrants are either given less desirable cars attached to the regular trains, or are sent on trains by themselves. Other carriers make first and second class rates by the same train, the difference in charge having some regard to difference in the carriages which are allotted to the classes respectively. In some sections colored persons are required to take separate cars, though charged the same rates as others. The carriers making this requirement assume to give to colored persons accommodations equal to those given to white people, and are required by law in some States to do so; but complaint has been made that this is not always done.

Then, on all roads of any considerable length, parlor and sleeping cars are run, which in most cases are owned by outside corporations, and a special charge made by the owners for seats or berths in them. The palace and sleeping car corporations, like the express companies, as has already been said, do not understand that they come within the contemplation of the act, so as to be subject to its provisions, but the persons accommodated by them must also have tickets for passage from the railroad companies, and as to those it is not doubted that the same rules of uniformity and impartiality apply as in other cases.

Previous to the passage of the act it was customary on many of the roads of the country to give reduced rates to the class of persons known as "commercial travelers," but this was made illegal by

the provisions in the act against unjust discrimination (1 Interstate Commerce Reports, p. 8). It was also common in some quarters to give special rates to land lookers, explorers, or settlers, who were supposed to be looking for or establishing new homes in a section where their purchase, settlement, or improvement would benefit the carrier giving them, but this also is held to be now forbidden (1 Interstate Commerce Reports, p. 208). The opinion of the Commission as declared in these cases is that, under the law, it is no longer competent for the carrier to discriminate among passengers enjoying the same accommodations, by means of any special classification dependent upon occupation or other condition or circumstance of a personal nature, except as the law itself, by the twenty-second section, has in terms authorized it.

X. VOLUNTEER ASSOCIATION OF RAILROAD MANAGERS.

Nearly every railroad in its origin has been independent of all others; and in the early history of such roads they were commonly provided for as local conveniences, with no prevision of the great highways of trade and communication which they have since become. It was in many cases thought to be important that a road should be kept as distinct in its business from all others as possible, and at their termini in some instances they were not allowed to have the same freight or passenger stations with other roads, lest the local draymen or hackmen should be deprived of a profitable employment.

When the great possibilities of railroad service came to be better understood these primitive notions of local benefits gave way before a more enlightened public sentiment, and the fact was recognized that the public interest would be best subserved by making the connection between the roads as close as possible, in order that the commerce between different sections and localities might go on steadily and uninterruptedly. The railroad companies perceived also that their interest lay in the same direction, and they not only entered into close business relations with each other, but in many cases formed consolidations. The tendency to consolidation excited public distrust, being looked upon as a device to avoid competition and to deprive the public of the benefits of having more than one line of transportation for the same traffic, which, in some cases, had been the chief inducement to the building of particular lines. Laws were therefore passed forbidding consolidation; but these were avoided by taking leases of roads, or by acquiring a controlling

interest in the stock, and then entering into permanent running arrangements.

But it sometimes happened that the managers of a road deemed it for its interests to work in complete independence, and while making profit out of the local conveniences supplied it found means to add to these a further profit from the inconvenience it could cause to the business of other roads. It therefore discriminated between other roads; it hindered the business of one while it furnished all possible facilities to the business of another; and this it was enabled to do because it was not compelled by law to make joint running arrangements or joint tariffs for business with other roads. Such action was likely to incommode the public quite as much as it did the road which was discriminated against, but it seemed impossible to deal with it adequately by law. To make railroads of the greatest possible service to the country contract relations would be essential, because there would need be joint tariffs, joint running arrangements, an interchange of cars, and a giving of credit to a large extent, some of which were obviously beyond the reach of compulsory legislation, and, even if they were not, could be best settled and all the incidents and qualifications fixed by the voluntary action of the parties in control of the roads respectively.

Agreement upon these and kindred matters became, therefore, a settled policy, and short independent lines of road seemed to lose their identity and to become parts of great trunk lines, and associations were formed which embraced all the managers of roads in a State or section of the country. To these associations were remitted many questions of common interest, including such as are above referred to. Classification was also confided to such associations, it being evident that differences in classification were serious obstacles to a harmonious and satisfactory interchange of traffic. But what perhaps more than anything else influenced the formation of such associations and the conferring upon them of large authority, was the liability, which was constantly imminent, that destructive wars of rates would spring up between competing roads to the serious injury of the parties and the general disturbance of business.

Accordingly, one of the chief functions of such associations has been the fixing of rates and the devising of means whereby their several members can be compelled or induced to observe the rates when fixed. And in devising these means the chief difficulty was

encountered. Agreements upon rates were voluntary arrangements which could be departed from at pleasure, and if they had behind them no sanction, they were not likely to stand in the way of a war of rates when the provocation to one seemed sufficient. Accordingly, the scheme of pooling freights or the earnings from traffic was devised and put in force through the agency of these associations, as a means whereby steadiness in rates might be maintained. The scheme was one which was made use of in other countries and had been found of service to the roads.

The pooling system was looked upon with distrust by the public, mainly because it seemed to be a scheme whereby competition between the roads could be obviated, and rates for railroad service put up or kept up to unreasonable figures. But if railroad managers supposed that by this scheme they were to stop competition among themselves, the result has not answered their expectations. The competition has still gone on; each road striving to obtain as large a share of the business as possible, and no agreement among them could altogether prevent a yielding to the pressure of shipper for lower rates.

In 1877, when the pooling system was put in force by the Trunk Line Association, the rates charged on the first, second, third and fourth classes of freight from New York to Chicago were, respectively, 100, 75, 60 and 45 cents a hundred pounds. They are now 75, 65, 50 and 35 cents, but the classification as to many articles has in the meantime been reduced, so that the actual reduction is greater than these figures would indicate. Rates from Chicago to New York are also proportionately less. A similar result has been apparent elsewhere. The pooling system has done much to maintain steadiness in rates, but the managers have not been able by means of it to keep rates up to former standards. It has done something, however, to check the prevailing tendency to consolidation. The motives to consolidation are diminished by any contrivance which removes obstacles to the interchange of business and increases the facilities and conveniences for uninterrupted commercial intercourse.

The act to regulate commerce, expressing in that particular the desire of Congress to preserve to the people the benefits of competition, contains the following provision:

That it shall be unlawful for any common carrier subject to the provisions of this act to enter into any contract, agreement, or com-

bination with any other common carrier or carriers for the pooling of freights of different and competing railroads, or to divide between them the aggregate or net proceeds of the earnings of such railroads, or any portion thereof; and in any case of an agreement for the pooling of freights as aforesaid, each day of its continuance shall be deemed a separate offence.

But while thus prohibiting pooling the act undertakes to give by other provisions some of the securities which railway managers had hoped might be realized from that device. The seventh section provides:

That it shall be unlawful for any common carrier subject to the provisions of this act to enter into any combination, contract, the carriage of freights from being continuous from the place of schedule, carriage in different cars, or by other means or devices, or agreement, express or implied, to prevent, by change of time shipment to the place of destination, unless such break, stoppage, or interruption was made in good faith for some necessary purpose, and without any intent to avoid or unnecessarily interrupt such continuous carriage or to evade any of the provisions of this act.

And in the third it is declared that—

Every common carrier subject to the provisions of this act shall, according to their respective powers, afford all reasonable, proper, and equal facilities for the interchange of traffic between their respective lines, and for the receiving, forwarding, and delivering of passengers and property to and from their several lines and those connecting therewith, and shall not discriminate in their rates and charges between such connecting lines; but this act shall not be construed as requiring any such common carrier to give the use of its tracks or terminal facilities to another carrier engaged in like business.

The fourth section of the act has also important possibilities as a restraint upon reckless rate wars. The reductions when such wars are in progress have generally been made chiefly at competitive points a considerable distance apart; and when a reduction of rates at such points involves also a reduction to or from a great number of intermediate points, a resort to a cutting of rates that goes beyond the warrant of legitimate competition becomes unlikely in proportion as it would be injurious to the party inaugurating it.

The pooling of freights and of railroad earnings, so far as the Commission has knowledge or information on the subject, came to an end when the act took effect. But as pooling was only one of several purposes had in view in forming railroad associations, the leading associations have not been dissolved, but have been continued in existence for other objects. Among these objects are the making of regulations for uninterrupted and harmonious railroad communication and exchange of traffic within the territory embraced by their workings. Some regulations in addition to those made by the law are almost, if not altogether, indispensable. Thus, while the seventh section of the act forbids the carriers preventing shipments from being continuous by the device of changing time schedules, carriage in different cars, etc., it has not undertaken to provide for the making of such time schedules as would facilitate the continuous shipment, or to prescribe rules for the loading and movement of cars for that purpose. However desirable this might have been if it were practicable to make rules which, while general in their nature, should be sufficiently definite for enforcement as laws, it was doubtless perceived by Congress that these and many other matters of detail, though they might be of high importance, could not be wisely and effectively dealt with by general legislation, but that such legislation must chiefly be restricted to provisions for regulation and to prevent abuse.

Moreover, these matters of detail, to a considerable extent, involve the element of contract, and also of credit, when one company becomes the agent for another in the sale of tickets and the collection of freight moneys; and then they require the assenting minds of parties; and the number of parties whose minds are to be brought into accord being commonly very considerable, an association of officers or agents is made the means of bringing about the desired unity of action, and is also made a common arbiter, to prevent frequent and serious disturbances.

Classification, also, as has been said, is not by the act taken out of the hands of the carriers, though a certain power of supervision is vested in the Commission; and classification is not only best made by joint action, but if it were not so made and the methods of the roads thereby brought into harmony, it would probably become indispensable, however undesirable it might otherwise be, for the law to undertake to provide for it. Moreover, when classification is made and put into effect, it becomes necessary to make provision

for inspection or some sort of supervision of its application, in order to prevent its being employed as a device for giving preferences as between shippers. A fraudulent classification, through connivance of the agent in making out deceptive shipping bills, has often been resorted to for this purpose; and as the fraud affects the competing carriers as well as the shippers who are discriminated against by means of the cheat, the carriers and the public alike are interested in such a supervision of the work of all the roads as will be likely to detect the fraud. Self-interest on the part of the carriers will impel to this supervision, and it is most generally done through some common agency. If it shall be fairly done as between the carriers themselves, it will tend to the protection of the public; and the benefits will be on the same line with those the act undertakes to establish or provide for.

XI. REASONABLE CHARGES.

Of the duties devolved upon the Commission by the act to regulate commerce, none is more perplexing and difficult than that of passing upon complaints made of rates as being unreasonable. The question of the reasonableness of rates involves so many considerations and is affected by so many circumstances and conditions which may at first blush seem foreign, that it is quite impossible to deal with it on purely mathematical principles, or on any principles whatever, without a consciousness that no conclusion which may be reached can by demonstration be shown to be absolutely correct. Some of the difficulties in the way have been indicated in what has been said on classification; and it has been shown that to take each class of freight by itself and measure the reasonableness of charges by references to the cost of transporting that particular class, though it might seem abstractly just, would neither be practicable for the carriers nor consistent with the public interest.

The public interest is best served when the rates are so apportioned as to encourage the largest practicable exchange of products between different sections of our country and with foreign countries; and this can only be done by making value an important consideration, and by placing upon the higher classes of freight some share of the burden that on a relatively equal apportionment, if service alone were considered, would fall upon those of less value. With

this method of arranging tariffs little fault is found, and perhaps none at all by persons who consider the subject from the standpoint of public interest. Indeed, in the complaints thus far made to the Commission little fault has been found with the principles on which tariffs for the transportation of freight are professedly arranged, while applications of these principles in particular cases have been complained of frequently and very earnestly.

Among the reasons most frequently operating to cause complaints of rates may be mentioned:

The want of steadiness in rates.

The disproportion between the charges for long and those for short distances.

The great disparity between the charges made for transportation by roads differently circumstanced as to advantages.

The extremely low rates which are compelled by competition in some cases, and which may make rates which are not unreasonable seem, on comparison, extremely high.

Some others will be mentioned further on.

The want of steadiness in rates is commonly the fault of railroad managers, and may come from want of care in arranging their schedules, or from want of business foresight. But more often perhaps it grows out of disagreements between competing companies which, when they become serious, may result in wars of rates between them. Wars of rates, when mutual injury is the chief purpose in view, as is sometimes the case, are not only mischievous in their immediate effects upon the parties to them, and upon the business community, whose calculations and plans must for a time be disturbed, but they have a permanently injurious influence upon the railroad service because of their effect upon the public mind. When railroad companies determine for themselves what their rates shall be, it is not unnatural for the public to infer that the lowest rates charged at any time are not below what can be afforded at all times, and that when these are advanced the company is reaching out for extortionate profits.

Now, there are few important lines in the country that have not at some time in their history been carrying freight at prices that if long continued would cause bankruptcy. But to a large proportion of the public the fact that the rates were accepted was proof that they were reasonable; and when advanced rates are complained of,

the complainants, to demonstrate their unreasonableness, go back to the war prices, and cite them as conclusive proof of what the companies then charging them can afford to accept. Many popular complaints have their origin in the ideas regarding rates which these wars have engendered or fed, and the evils of the controversies do not end when the controversies are over, but may continue to disturb the relations of railroad companies with their patrons for many years afterwards.

It may be truly said, also, that while railroad competition is to be protected, wars in railroad rates unrestrained by competitive principles are disturbers in every direction. If the community reaps a temporary advantage, it is one whose benefits are unequally distributed, and these are likely to be more than counterbalanced by the incidental unsettling of prices and interference with safe business calculations. The public authorities at the same time find that the task of regulation has been made more troublesome and difficult through the effect of war rates upon the public mind. These are consequences which result so inevitably from this species of warfare that it would naturally be expected that they would be kept constantly in mind by railroad managers. It is inevitable that the probability that any prescribed rates will be accepted by the public as just shall, to some extent, be affected by the fact that at some previous time they have been lower; perhaps considerably lower.

The disproportion between the rate charged and the distance the property is carried is also important in its effect upon the minds of those who have not the time or perhaps the opportunity to study the subject and understand the reasons. There are grounds on which short-haul traffic may be charged more in proportion to the distance of transportation than long-haul traffic, some of which anyone would readily understand and appreciate. Thus, it is seen that a considerable proportion of the carrier's service is the same, whether the transportation is for the short or for the long distance; there must be the same loading and unloading, the same number of papers and entries on books, and so on. It is also seen that short-haul traffic is more often taken up and laid down in small quantities, and for this reason the proportionate train service is much greater.

But when all these considerations are taken into account it will still appear that the long-haul traffic is given an advantage in rates which must be accounted for on grounds which are not so readily

apparent. When the reasons are seen, it may perhaps appear that there is, in fact, no wrong either to the shippers, who are apparently discriminated against, or to the general public.

It is not uncommon that in railroad freight service the rates for the transportation of a particular kind of property, instead of being regularly progressive, shall be found arranged on a system of grouping, whereby the charges to all points within a defined territory shall be the same, though the distances will vary. Thus, at the present time the rates which are made from New York to Chicago are also made from New York to all points within a territory about Chicago, which includes some important towns in Western Indiana and Western Michigan. A question might be made by such towns whether grouping them with Chicago and making them pay the same rates is just, but the grouping system in general departs so little from the distance proportions that it is seldom the ground of complaint.

There are cases, however, in which the distance proportions are purposely disregarded, and the doing so is justified by the managers on the negative ground that no one is wronged by it, and on the affirmative ground that the public is benefitted. Cases of the sort may perhaps be found about all our large cities in which the railroads, as to some particular agricultural production needed for daily consumption in the city, have gradually extended the area from which they would receive and transport it at the lowest rates, until they may be found carrying the article at the same price for 100 miles as for 20. The low rate for the long distance has extended the area of production and benefitted the city, and it is possible to conceive of cases in which the opposite course, of taking distance into the account in all rate making, would have kept production so far restricted in territory that producers near the city could never have been given as low rates as they receive now, when they are charged the same as their more distant competitors. Where such a case appears, the failure to measure the charges from regard to distance could not dogmatically be pronounced unjust, if it appeared that the railroad on the one side, and the public on the other, was benefitted by the course actually adopted. But to increase the rates to the nearer producers, or even to keep them at a point which, though fair in the first place, has in the course of events become unreasonably high, in order to be able to put those at a distance on an equal footing in the market with such nearer pro-

ducers, would be manifestly unjust. Not even on ground of general public advantage do we understand that this would be justified, for public benefits, when they are to be had at the cost of individual citizens, can not rightfully, nor we suppose lawfully, be assessed on one class of the people exclusively.

The great disparity in the charges of different roads for the transportation of the same kind of property is a prolific cause of complaint, sometimes justly founded and sometimes not. It is apparent sometimes in the complaints which are made to the Commission that the parties complaining hold the opinion, or at least have an impression, that the cost of transporting a particular species of property is substantially the same on all roads, and that consequently the charges made by one road may prove with tolerable certainty that the higher charges made by another road are unjust. If the circumstances and conditions under which the traffic is carried by the two roads are substantially the same, the comparison would be legitimate and the argument from it of very great force. But when any such comparison is made, there are some circumstances having an important bearing upon rates which cannot be left out of view. Among these may be specified:

The length of haul.—A thousand tons of wheat can be loaded, transported a thousand miles and delivered much more cheaply in proportion to distance than the same quantity can be loaded, transported one hundred miles and delivered.

The quantity hauled.—A trainload of coal can be transported more cheaply in proportion to quantity than a single carload, and a carload more cheaply than a hundred pounds. So if the business is large, though it be the transportation of many kinds of property, it can be done relatively more cheaply than if it were small.

Return freights.—If lumber or other property in quantity is to be delivered at points where there will be return loads for the same cars, the delivery can be made much more cheaply than at points where return freights could not be expected.

Cost of moving trains.—This is very much less on some roads than on others by reason of lighter grades, cheaper fuel, less liability to obstruction from storms, and other causes which may disturb the track or delay trains.

These are among the causes which have an important bearing on relative rates. Beyond these, the relative cost of roads must be allowed for also if the owners are to be permitted to charge such

rates as will make their investments remunerative. A complaint that rates are unreasonable may therefore require for its proper adjudication a careful inquiry not only into the circumstances and conditions of the road which makes them, and of the traffic upon it, but also into those of other roads whose lower rates are supposed by comparison to show the injustice of the rates complained of.

But there are reasons which make it necessary, in adjudicating a case of alleged excessive rates, to consider rates on other lines or at other points, even when the complaining party makes no argument or draws no conclusion from them. Questions of rates on one line or at one point can not be considered by themselves exclusively; a change in them may affect the rates in a considerable part of the country. Rates from the interior to New York necessarily have close relation to rates from the same points to Philadelphia, Boston and Baltimore; rates from the seaboard to Toledo must have a similar relation to those from the seaboard to Detroit and other towns whose business men compete with those of Toledo in a common territory. Just rates are always relative; the act itself provides for its being so when it forbids unjust discrimination as between localities. This prohibition may sometimes give to competition an effect upon the rates beyond what it would have if the competitive forces alone were considered.

The Commission has had occasion, where a railroad company operated lines which run parallel to each other, to hold that if the company yielded to competitive forces so far as to give towns on one line very low rates, the effect of such low rates upon the business of rival towns on the other line could not be ignored when their rates came under consideration. The natural influence of just competitive forces ought to be allowed as it would be as between two lines owned by different companies, and if the rates on one line were made very low because of competition, keeping the others high because the absence of competition enabled it to be done might amount, within the meaning of the law, to unjust discrimination. Consolidation of rival lines, or the bringing them under the same management, cannot justify ignoring on one line the effect of competitive forces on the other. Those forces always, when not unnaturally restrained, have an influence which reaches beyond the points whose business is controlled by it, and by secondary effect modifies prices to more distant points. This is well understood in the trans-

portation business. The modifying effect of rates by lake and canal is perceived in the charges on all lines from the Mississippi to the seaboard; the rates to and from Duluth affect all charges in the Northwest to and from Chicago. Any arrangement by consolidation or otherwise that should undertake to eliminate this influence would, if made on a large scale, be futile, because it would antagonize laws of trade and communication which would be too powerful for it, and on a small scale, affecting particular towns or small districts, it might be illegal from its manifest inequality or injustice.

Competition.—A study of the act to regulate commerce has satisfied the members of the Commission that it was intended in its passage to preserve for the people the benefits of competition as between the several transportation lines of the country. If that shall be done the towns which have great natural advantages, or advantages acquired by large expenditures of money in establishing new thoroughfares of commerce, will have cheaper rates than can ordinarily be obtained by towns less favorably situated. New York with its noble harbor, its central location, the Hudson River, and the Erie Canal for interior waterways, cannot be deprived of the benefits which spring from these great natural and acquired advantages without altogether eliminating competition as a force in transportation charges, and by an exercise of sovereign legislative power establishing arbitrary rates over the whole country.

It might possibly be within the competency of legislative power to prescribe for the several interstate railroads equal mileage rates for the whole country; but this, if enforced, would put an end to competition as a factor in making rates, and to a very large extent deprive the great business centers of the country of their several natural advantages, and also of the benefit of expenditures made by them in creating for themselves new channels of trade. It would, in fact, work a revolution in the business of the country, which, though it might be beneficial in some directions, would be fearfully destructive in others. Congress has not by the existing legislation undertaken to inaugurate such a revolution. Nothing in the act to regulate commerce looks in that direction, unless it be the prohibition to charge more for a shorter than for a longer haul on the same line in the same direction, the shorter being included in the longer distance. But that prohibition is not absolute, and if it were,

a strict enforcement would necessarily be at the expense of the competitive centers which have heretofore had the exceptionally low rates. The rates have made them centers for a valuable wholesale trade which they cannot expect to retain permanently in its entirety if they are deprived even in part of the advantages which they have hitherto had from the competition of rival carriers. The benefit which non-competitive points receive must be largely at the expense of the competitive. This is one of the inevitable consequences of perfecting the reform in the direction of basing rates upon distance more than has been the case hitherto. It is an incidental disadvantage to some which is supposed to be more than made up by the more equal apportionment of transportation benefits.

The competition by water is the most important factor in forcing rates to a low level at the points where the lines of land and water transportation intersect. Where there are good channels of water transportation, the cost of moving traffic upon it is so very greatly below the cost of rail transportation that the railroads would scarcely be able to compete at all if rapidity of transit were not in most cases a matter of such importance that it enables the railroads to demand and obtain higher rates than are made by boat. But even when compensated for the extra speed, the rates which the roads can obtain if in competition with the natural waterways must be extremely low, and in some cases leave little if any margin for profit. The experience of the country has demonstrated that the artificial waterways can not be successful competitors with the railroads on equal terms. If the effort is to make the business upon them pay the cost of their maintenance and a fair return upon the capital invested in them, its futility must soon appear. The railroads long since deprived the great canals of Ohio, Indiana and Illinois of nearly all their importance, and the Erie Canal is only maintained as a great channel of trade by the liberality of the State of New York in making its use free, the State thus taking upon itself a large share of the cost of transportation which would be assessed upon the property carried if the canal were owned and held for the profit of operation, as the railroads are.

In their competitive struggles with each other, towns cannot ignore the effect which the existence of natural waterways must have upon railroad tariff; the railroad companies cannot ignore it,

nor can the Commission ignore it if competition is still to exist and be allowed its force according to natural laws. Neither can the great free Erie Canal be ignored; it influences the rates to New York more than any other one cause, and indirectly, through its influence upon the rates to New York, it influences those to all other seaboard cities, and indeed to all that section of the country.

Other considerations bearing upon the reasonableness of rates might be mentioned, but enough has been said to show the difficulty of the task which the law has cast upon the Commission, and the impossibility that that task shall be so performed as to give satisfaction to all complaints. The question of rates, as has already been shown, is often quite as much a question between rival interests and localities as between the railroads and any one or more of such localities or interests; but while each strives to secure such rates as will most benefit itself, the Commission must look beyond the parties complaining and complained of, and make its decisions on a survey of the whole field that, either directly or indirectly, will be affected by them.

XII. GENERAL OBSERVATIONS.

The act to regulate commerce has now been in operation nearly eight months. One immediate effect was to cause inconvenience in many quarters, and even yet the business of some parts of the country is not fully adjusted to it. Some carriers also are not as yet in their operations conforming in all respects to its spirit and purpose. Nevertheless the Commission feels justified in saying that the operation of the act has in general been beneficial. In some particulars, as we understand has also been the case with similar statutes in some of the States, it has operated directly to increase railroad earnings, especially in the cutting off of free passes on interstate passenger traffic, and in putting an end to rebates, drawbacks and special rates upon freight business. The results of the law in these respects are also eminently satisfactory to the general public, certainly to all who had not been wont to profit by special or personal advantages. In connection with the abolition of the pass system, there has been some reduction in passenger fares, especially in the charge made for mileage tickets in the Northwest, the section of the country where they are perhaps most employed.

Freight traffic for the year has been exceptionally large in volume, and is believed to have been in no small degree stimulated by

a growing confidence that the days of rebates and special rates were ended and that open rates on an equal basis were now offered to all comers. The reflex action of this development of confidence among business men has been highly favorable to the roads.

In some localities the passage of the act was made the occasion on the part of dissatisfied and short-sighted railroad managers for new exactions, through a direct raising of rates, by change in classification and otherwise. The manifestation of the spirit which induced such action is now but seldom observed, and the wrongs resulting from it have in general been corrected. The effect of the operation of the fourth section has been specially described above, and the Commission repeats in this place its opinion that, however serious may have been the results in some cases, the general effect has been beneficial. The changes in classification made since the act took effect have been in the direction of greater uniformity, and have also, in general, it is believed, been concessions to business interests.

The tendency of rates has been downward, and they have seldom been permanently advanced except when excessive competition had reduced them to points at which they could not well be maintained. No destructive rate wars have occurred, but increased stability in rates has tended in the direction of stability in general business. There is still, however, great mischief resulting from frequent changes in freight rates on the part of some companies—changes that in some cases it is difficult to suggest excuse for.

XIII. AMENDMENTS OF THE LAW.

The Commission has not seen occasion for recommending any very considerable changes in the act under which its work is performed. It has seemed to members that the law for the regulation of interstate commerce should be permitted to have a growth, and that it would most surely as well as safely attain a high degree of efficiency and usefulness in that way. The general features of the act are grounded in principles that will stand the test of time and experience, and only time and experience can determine whether all the provisions made for their enforcement are safe, sound and workable. When they prove not to be, experience will be a safe guide in legislation to perfect them.

Incidentally in this report some need of amendment has been pointed out. Especially ought the law, as we think, to indicate in

plain terms whether the express business and all other transportation by the carriers named in the act shall be governed by its provisions. The provision against the sudden raising of rates ought to be clearly made applicable to joint rates, as well as to others. The Commission ought also to have the authority and the means to bring about something like uniformity in the method of publishing rates, which is now in great confusion, and to carefully examine, collect, and supervise the schedules, contracts, etc., required by the law to be filed, as well as properly to handle the mass of statistical information called for in the twentieth section. For all these purposes, as well as for others imperfectly provided for, a considerable addition to the force employed with the Commission will be indispensable.

Other matters, and particularly whether transportation by water shall be made subject to the act, are submitted to the wisdom of Congress without recommendation.

All which is respectfully submitted.

Dated Dec. 1, 1887.

THOMAS M. COOLEY,
WILLIAM R. MORRISON,
AUGUSTUS SCHOONMAKER,
ALDACE F. WALKER,
WALTER L. BRAGG,
Interstate Commerce Commissioners.

PERSONNEL OF THE COMMISSION.

THOMAS M. COOLEY (1824-1898), eminent constitutional jurist; born in Attica, N. Y.; moved to Michigan 1843; justice of Supreme Court of that State, 1864-1877; professor of constitutional and administrative law and political science, etc., University of Michigan, 1881-1886; appointed member of Interstate Commerce Commission upon its creation in March, 1887, by President Cleveland and unanimously elected its first chairman; resigned on account of ill health, 1891; author of numerous works, especially on constitutional law.

WILLIAM R. MORRISON (1825-1909), soldier, lawyer, representative democrat; born Monroe County, Illinois; served in Mexico and in the Civil War; elected to Congress from the field, 1863; chairman Ways and Means Committee, 1873-75 and 1883-87; advocated horizontal reduction of the tariff; appointed to the Interstate

Commerce Commission by President Cleveland, 1887, and reappointed by President Harrison in 1892; succeeded Judge Cooley as chairman in 1891; retired to resume practice of the law in 1898.

AUGUSTUS SCHOONMAKER, of New York.

ALDACE F. WALKER (1842-1901), soldier, lawyer, railway authority; born Rutland, Vt.; served in Civil War 1862-1864, mustered out as lieutenant-colonel; practiced law in Rutland and member of State Senate, 1882-1887; appointed to Interstate Commerce Commission in 1887 by President Cleveland; retired 1889; in 1894 appointed receiver of Atchison, Topeka & Santa Fe Railway Company and elected chairman of board on reorganization in 1896.

WALTER L. BRAGG (1838-1891), soldier, lawyer; born in Lowndes County, Alabama; served in Confederate Army throughout Civil War; resumed practice of law; first president Alabama State Bar Association, 1878; elected Alabama Railroad Commission, 1881 and 1883; appointed Interstate Commerce Commission in 1887, by President Cleveland, and died in office.

REGULATION OF INTERSTATE COMMERCE

BY THE HON. MARTIN A. KNAPP,

Chief Justice of the Court of Commerce.

(Abstracts made for the "Railway World" from the three Addresses by Judge Knapp before the Houston Club of the University of Virginia, Nov. 15, 17 and 20, 1911.)

EXTRACTS FROM ADDRESS OF NOVEMBER 15.

I direct my attention in this discourse solely to the agencies of commerce—the railroads. Why should carriers be regulated? The right goes back to primeval days. Man, in those times had ways of passage from one hunting field to another, from his rude abode to the places where he found his food and his sport. When man advanced in civilization, the right of way was one of the first fixed by ancient custom, and finally by law. Then came the establishment of the highway and the street. It may well be said that the street is the foundation of the State.

Government has three important functions: To give security to the person, protection of property and assurance of equal use of the highways. Henry George, the brilliant and not altogether mistaken thinker, declared once: "What difference is there between a man owning all the land and owning all the people? For if he owns the land he will own the people who are forced to dwell thereon." I amend that by saying that the person who owns the highways owns both the land and the people.

There is an inherent right to equal use of the highways and the rise of the great railway system has not altered this in the slightest. It is regarded as settled, therefore, that the large shipper must not be favored over the small shipper; that communities may not suffer from discrimination in rates; that schedules may be examined by the Government; that rebating and other evil practices shall be punished, and that unfair rates may be changed. In the wisdom of our legislatures the giving of rebate and special privileges has been made a criminal misdemeanor. Its practice was once prevalent. It is now as rare as forgery or burglary.

Our whole national future depends upon the solution of these problems of interstate commerce. If we are to go forward the

revenues of the railroads should be sufficient to pay such a return upon honest investment that capital may be attracted for the construction and extension of railways and the development of regions that await us. The revenues should be large enough to pay all employes wages which will make national prosperity.

Our method of dealing with the railroads is still in the experimental stage. You students of this great university will know the result after we have passed on. I see serious dangers in the present condition. Congress is constantly agitated. So are the legislatures of all the States. Forty State commissions are wrestling with the subject. There is the menace of stubborn conflict between the railroads and their two million organized employes. Finally, there is a menace of political influence. If the regulation which is now sought to be enforced shall be found inadequate, Government ownership of the railroads is the only alternative.

The regulation of interstate commerce is one of the most commanding and certainly one of the most conspicuous subjects now before the public. The provision in the Federal Constitution giving to Congress the right to regulate commerce with foreign nations, between States and with the Indian tribes, has not only stood the test of past generations, but appears to be adequate for our marvellously changed modern conditions.

The history of litigation based upon this constitutional provision is illuminating. The first case to come before the United States Supreme Court upon this subject was not reached until 1834, one-third of a century after the adoption of the Constitution. Until 1840 only four cases came before that tribunal. Between 1840 and 1860 fifteen more cases were heard. Between 1860 and 1880 there were fifty cases. In the decade between 1880 and 1890 seventy-eight cases were heard by the highest court in the land, more than were decided in all previous years of our national existence. Since 1890 hundreds of these cases have come before the Supreme Court, and the number is increasing steadily.

In the first case that was brought before the Supreme Court an attempt was made to restrict within narrow bounds the constitutional rights of Congress. Chief Justice John Marshall rejected the application for such restriction, and declared that the power to regulate commerce given to Congress knows no limit other than the Constitution.

A concurrent opinion by Associate Justice Johnson, which is little known, declared that not only the articles and subjects of interstate commerce may be regulated by Congress, but that all the agencies and facilities entering into such commerce are also within the regulation power of Congress. "

EXTRACTS FROM ADDRESS OF NOVEMBER 17.

Congress has the authority under the Constitution to regulate not only the rates that may be charged by the carriers, but has also the power to dictate the location of the interstate lines. No attempt has ever been made to exercise this power, but it may be that the time will soon come when such efforts will be made.

That which is true of the power to regulate the location of railroads is true also of the power to regulate the construction of interstate lines. This is an untried and a practically unlimited field for regulation and one that promises to be invaded in the near future.

So far as the regulation by Congress of the operation of railroads is concerned, we have examples of that in the laws relating to the use of safety appliances, of the hours of workmen's service and of the stoppage of live stock trains for the purpose of getting food and water.

A recent decision that all the cars and locomotives of a certain railroad must be equipped with safety appliances under the federal law, although these vehicles do not carry one pound of interstate freight opens tremendous possibilities in the way of future regulations that are just being appreciated by lawmakers and railroad officials.

Concerning the regulation of railroads with each other, I made it plain in my lecture last Wednesday that I am not in sympathy with attempts to compel common carriers to compete in rates and other matters. It is right and proper to compel competition in the buying and selling of foodstuffs and other products. That makes business and is the very life of trade. But transportation is a public service. It is not property. It is akin to a governmental function. To me, it is clear that all governmental functions should be exercised for the benefit of all and with equal advantages to all.

The farmer who freights only one package a year should be served as well and as cheaply as the manufacturer who sends his products by daily carloads. The importer who forwards only a small consignment should have the same opportunity of access to

the home market that is given to the concern that imports shiploads at a time.

It is in the relation of interstate carriers to their employes that we face one of the gravest problems of modern civilization. Its complexity baffles us. Its magnitude dismays. The enormous increase in the number of employed and the enormous decrease in the number of employers are largely responsible for our present troubles.

A century ago it was the rule that an employer was master over about forty or fifty workers. He came into close, constant contact with his servants. They had almost as much to say in the labor problem as he had. They could bargain directly with him for their services and their differences were adjusted face to face.

Today it is not uncommon to find hundreds of thousands of employes under a single directing head. The consequence is the necessity for labor organizations, in which, by the way, I firmly believe. What chance would one workman have today if he attempted to bargain for the sale of his services to a great corporation? He must associate with other workmen to protect his rights and to better his condition.

Society has provided an excellent method for the settlement of individual disputes in the establishment of courts. There men may submit their differences and have them adjudicated. Society is not greatly concerned with the rapidity, the justice nor with the after-relations of the parties. It only wants the dispute settled.

With industrial disputes, the case is very different. Society is gravely concerned in their speedy settlement and in the re-establishment of friendly relations between the parties. The work for the common good must go forward. Trains must be moved. Commerce must not be impeded. Settlement must be made of disputes that occur and that ought to occur concerning wages, hours of labor and similar things.

I have long doubted the expediency of arbitration, and particularly the so-called compulsory arbitration. As well might we speak of a white blackbird. The essence of arbitration is the voluntary submission by both parties of their causes to the arbitrators. There can be nothing of a voluntary character in compulsory arbitration.

A law was passed in 1898 which is known by the name of its proposer as Erdman's act. It provides among other things that when the employes of certain kinds of interstate carriers have a

dispute with their employers, either side to the argument may petition the chairman of the Interstate Commerce Commission and the United States Commissioner of Labor to act as mediators for the purpose of adjusting the trouble.

In the event that such adjustment may be found to be impossible, there shall be an attempt at arbitration, each side naming an arbitrator and these two choosing an umpire. In the event that no umpire can be agreed upon, the chairman of the Interstate Commerce Commission is authorized to appoint that official, who, of course, is the whole court in reality.

Although this law was enacted in 1898, it was not until eight years later that it was anything but a dead letter. Prosperity perhaps tended to prevent its use before that time. Since 1906, it has been my duty and pleasure as chairman of the Interstate Commerce Commission to participate in its useful administration with virtually uniform success.

An example of the change that has come into the public mind since the enactment of the law is afforded by a certain railroad. Just after the law was passed, employes of a number of roads complained of certain grievances and requested Carroll D. Wright, then Commissioner of Labor, and myself to enforce the act. We wrote to the presidents of the affected roads and received prompt and courteous replies to the effect that they could recognize no right in outsiders to interfere with the wages or the hours of their workers or with any other affair of the company that was purely a matter of business.

In 1907 I received a similar request from the employes of one of the railroads concerned in the former affair. I telegraphed to the president who had written one of the courteous refusals years ago. The next day he was in my office and was eager for our intervention.

Workmen will try to get all the wages they can and employers will try to hire as cheaply as they can. The worker has a perfect right to quit work and the employer has an undoubted right to replace him. The courts have the power to adjudicate differences of this kind. There is a contractual relation, one that concerns the future, not the past. Not only must the differences be reconciled, but both parties must be friends.

It is the recognition of the public as the third party to all such disputes that makes governmental mediation practicable. The need

for such interposition is apparent. It may have to come soon. Strikes do not come out of a clear sky. The suggestion is one that should be considered by all who desire the peaceable, permanent adjustment of the disputes that unsettle business and are menaces to public peace.

EXTRACTS FROM ADDRESS OF NOVEMBER 20.

Among the difficulties of regulation prominent places should be accorded to these: To see that the rates are just; to prevent needless discrimination; to control the relations between carriers and employes and between carriers and carriers; to locate interstate lines; to dictate their construction, and many others.

If regulation is to be exercised in these unexplored fields see what a tremendous task confronts us; of what appalling dimensions. It is not impossible to think that the system might break down of its own weight. The volume of administrative details may be beyond the successful capacity of public administration. If we go to such an extent as fully and completely to control railways there may be so little room left for individual initiative and enterprise, so little chance for investment, such small opportunities for gratifying a career, that our railway performances may become indifferent, fail to respond to public need and lack of progressiveness. It is a problem of magnitude and delicacy. How far shall we go and still retain the advantages of private ownership?

It is conceivable that the extent of regulation may be little short of public ownership in fact and lead to that in law.

Next, said the Judge, is the problem growing out of the country's dual form of government. Said he: "The conflict between the Federal and State government is liable to reach rather an acute stage in the near future. The more closely we examine this question, the more clearly it appears that this service cannot be subjected to dual authority." The speaker gave instances to show the sometimes sharp conflict between the State and the Interstate Commerce Commissions. It is entirely possible, he said, for the State to fix intrastate rates, and thereby affect vast volumes of interstate traffic. This, it was pointed out, leads to a country-wide readjustment of rates. The question of rates is one which affects the whole country and all the people should be fairly and equally recognized.

Then, Judge Knapp began a consideration of the financial problem involved. "It is a question," he said, "of national policy; the

adjustment of rates to yield that net revenue which on the whole will prove to be to the advantage of the country at large. We should permit our railroads to earn enough so that the railroad business may be attractive to investors, so that men may have an opportunity for careers, so that wages may be adequate and improvements and new lines paid out of revenues without an increase of securities. Then the question will come, how shall earnings be adjusted with reference to these questions? It will be possible to cut down earnings without actually confiscating property; to reduce rates as far as possible, with the chance of resultant stagnation and failure to meet the demands of the future. By making the rates too liberal, the railroad business would be made over-attractive.

"This might lead to needless construction, as was the case in the three feverish decades following the Civil War, when many receiverships occurred. Suppose we attain the ideal condition. Then how will rates be apportioned between the different articles? Let me suggest some thoughts. More consideration has been given to the cost of carriage than to the value of the service. We don't make enough difference between the rates for the necessities and luxuries. On shoes, for instance, the rate hardly affects the price to the consumer. The transportation tax on many of the necessities of life is 20 per cent; on luxuries, less than $\frac{1}{2}$ of 1 per cent. Some day there will be an insistence that luxuries pay their proper share of the taxes for transportation. What is an ideal or desirable apportionment? Most articles of luxury go at rates really inappreciable so far as the price to the consumer is concerned. Shall we not insist on a greater difference? The rate should be more in proportion to the value than is the case at present. I don't say that this is the way to fix rates, but ought we not give more recognition to the value of the article than the actual cost of service?"

What the speaker described as an unending problem came up next. This pertains to the adjustment of rates between different communities. Each city, it was pointed out, tries to enlarge its distributing trade. For instance, said the Judge, other things being equal, the bulk of foreign trade goes through New York, because it is the financial center of the country and because more ships stop in its harbor. "Therefore," argued Judge Knapp, "unless the rate in either direction through Philadelphia be somewhat less than through New York the tendency is to deprive Philadelphia of its

share of traffic. I don't believe in too much concentration. I believe that diffusion makes for better economic and social conditions."

The lecturer then referred to the fact that foreign trade rates are considerably lower than are allowed to domestic trade. "I can't see," he said, "why the import rate from New York should be materially less than the domestic rate. A solution of this problem, said the Judge, might be found by allowing associated action by the railroads for the purpose of holding up import rates against the foreigner."

Differentials next came into review. Judge Knapp declared that the import rates ought to be differentiated along the entire Atlantic seaboard that there might be a wide diffusion of the business from Montreal to Galveston. This will be hard to arrange, he pointed out, but it might be done in the process of time.

The famous "long and short haul" clause also was treated of. Judge Knapp offered this thought in connection with the subject: "Physical distance is one thing; commercial distance is another." Summing this question up, he said: "It is desirable that each community should have the freest opportunity to compete as a buyer and seller. Just now you are interested in what the rates should be from Philadelphia to the Middle West as compared with the rates from Boston or New York.

"The difference in the distance to, say, Idaho is insignificant, but are there not other differences which should give Philadelphia lower rates? This is a question to test the wisdom of statesmanship and to tax the resources of public administration."

THE COMMISSION ABOVE THE COURTS

HON. CHARLES A. PROUTY.

(Address before the Traffic Club of Pittsburgh, March 28, 1912.

Reprinted from the Official Report.)

The exacting nature of my official duties and the mandate of my physician both forbid my being here tonight, but the fame of the Pittsburgh Traffic Club is such that I could not resist the opportunity of meeting with you.

There was also in this case a certain personal element. Thirty-six years ago I spent a year in the Allegheny Observatory as the assistant of Prof. Langley, who was then at the head of that institution. Every night for that twelve months I looked down on the smoke and fires of Pittsburgh, and on the first day of each one of those twelve months I wended my way from the Observatory to some place which I can not now exactly locate, and there received my monthly stipend from a Mr. Thaw, who was the treasurer of the Observatory. He was at that time, as I now recollect, a vice-president of the Pennsylvania Railroad Company, and while I am sure that Mr. Thaw never noticed me, I can assure you that I took many a good look at him.

Wonderful is the transformation which has occurred in the physical aspect of these regions since then. Nowhere in this whole land has wealth been produced in such marvelous abundance as here, and nowhere is the evidence of that wealth more manifest; but equally striking is the social and political change as evidenced by the fact that I come back here tonight after thirty-six years in the capacity which I occupy. If that stout vice-president of the Pennsylvania could have been convinced that the stripling who applied to him each thirty days for his \$83.33 was one day to be the presiding officer of a tribunal which regulated the affairs of the vast properties over which he presided, he would have felt as did the hero of Virgil when the gates of Hades opened before him and exposed to his astonished view the wonders of those regions; *comae erectae, vox faucibus haesit*, his hair would have stood on end and his voice would have stuck in his throat.

I do not mean that there is anything so marvelous in the embryonic astronomer having delevoped into the regulator of railroad rates. In these days almost anybody may land almost anywhere.

When I first knew your distinguished toastmaster he was presiding over the destinies of some insignificant bureau in the Southwest—and he may wish he was still there before our Express investigation ends. It is no more wonderful that I should have become chairman of the Interstate Commerce Commission than that he should have got to be the president of Wells, Fargo & Company Express. As I look about me and observe the familiar countenances of those gentlemen who preside over the business destinies of this country I am filled with an amazement almost equal to that begotten of the contemplation of my own career. If there is before me a young man who feels, as did Sir Walter Raleigh in the presence of his august sovereign, "Fain would I climb but that I fear to fall," I should say, not as did Queen Elizabeth, "If thy heart fail thee, do not climb at all," but rather would I say, "Despair not, young gentleman, time and good luck may do for you all that it has for us."

The significant thing about this situation is not the individual but the national aspect; not that I should happen to be chairman of the Interstate Commerce Commission, but that there should be a tribunal of any sort which can say to the Pennsylvania Railroad, "So much and no more shall you charge for a transportation service." It is that thing which would have been utterly incredible to Mr. Thaw and to the age in which Mr. Thaw lived.

My doctor says to me among other things that I must not allow myself to get mad. When a man comes to that point of decline that he can no longer with impunity become excited, he has ceased to be an effective machine. He may exist for some years but his period of accomplishment has ended. He enjoys, however, certain privileges. He may recount the achievements of the past and he may advise as to the future.

I became a member of the Interstate Commerce Commission in December, 1896. The following spring, as I now remember it, the Supreme Court of the United States handed down its decision in what was known as the Maximum Rate Case, holding that the Commission had no authority to prescribe a maximum rate. Not long after this I wrote an article which was published in some magazine, taking the ground that there could be no regulation of the interstate railroad rates of this country without the exercise of that power. The views which I then expressed were bitterly condemned by almost every leading newspaper east of the Mississippi and north of the Potomac and Ohio rivers as socialistic and impossible.

What at that time was regarded as an extreme doctrine has come to be axiomatic. It is universally assumed today that interstate rates and practices must be regulated, and that they can only be regulated by prescribing the rate or the practice for the future. Nor is it within the realm of possibilities that the old order of things and the old set of ideas can ever return.

Are conditions today better or worse than they were fifteen years ago?

From the standpoint of the shipper they are infinitely better. Today every man pays the same rate as his competitor, every man knows what that rate is and can assume that his contract will be fulfilled upon the same rate under which it was made. There is a tribunal with power to hear and correct alleged grievances.

Upon the part of the railroad the answer should be the same. It must be certainly more comfortable to the traffic official to act within than to be habitually without the law; but disregarding the sentimental and moral aspects and looking only to the financial aspect, still today is better than then.

In 1897 the great railroad systems of this country did not establish their rates of transportation. These rates were made by powerful shippers, by insignificant competitors. When once made they could not be maintained.

Today, owing partly to a saner way of thinking and in part to a greater unity of operation, railways can control their rates. It would today be possible to very materially advance the published railway rates of this country and when once the rate has been filed, it must be and is maintained.

Upon the other hand the government now exercises the right of determining what rate shall be filed. From now on what the gross revenues of our railroads shall be rests with the government, mainly and increasingly with the federal government. This being so, what security can the railroad investor feel that this authority will be justly exercised? What assurance is there that rates will not finally be forced down to an unprofitable level or if the increasing cost of operation makes an advance in rates necessary, that this advance will be permitted? In a word, what protection has the vast investment which is represented by the railways of this country?

First of all, there is the protection of the courts, and this, I think, our financial interests mainly rely upon. In my own opinion that protection will not prove satisfactory.

Under the Constitution of the United States the functions of government are divided into the executive, legislative and judicial, and the functions of one branch of the government cannot be discharged by any other. The Supreme Court of the United States has itself declared that the making of a railway rate is a legislative function. There is no rule of law by which the reasonableness of a rate can be determined, there is no exact formula upon which it can be computed. When thought out it will be seen in every case the determination of a reasonable railway charge involves the exercise of judgment brought to bear upon the circumstances of each case. This is the method by which the traffic official makes the rate and his action must be revised by the same method if it is to be fairly and intelligently examined.

The Constitution of the United States forbids the taking of private property without due compensation. The legislature cannot so adjust the charges of a railroad as to deprive that railroad of a fair return for the use of its property as a whole. But there is no requirement either of the Constitution that the rate on sugar shall bear a certain relation to the rate on salt, or that the charge for transporting coal from a certain locality shall bear a given relation to the rate from a certain other locality, nor even that a certain part of the revenue shall come from the handling of passengers and another part from freight. These questions are all legislative. The court can only inquire whether the net result yields to the carrier a fair return, whatever that may signify.

In the past the courts have persisted in invading the legislative domain, but this will not, I think, be permanently permitted. There can be no intelligent review of a legislative act by judicial process. There can be no effective regulation of railway rates so long as the administrative acts of the regulating body can be reviewed by the courts. Ultimately the legislature will be left supreme in that domain where the exercise of legislative judgment is required.

This means that the court can stand between the railway and confiscation, but that it will not be allowed to determine how profitable the railway investment shall be, for that is not the business of a court. In all that vast realm covered by the word reasonable, within that zone bounded by confiscation on one side and a reasonable rate on the other, the legislature will dominate.

It should also be borne in mind that this protection which our railroads now have in the courts, and which I for one would be glad

to see left there, is properly exercised, can at any moment be taken away altogether. We act under a written Constitution which is at any time susceptible to amendment. If it becomes clearly apparent that in its present form our Constitution lends itself to injustice and prevents the accomplishment of the right, then it will in due time be changed. I have for a long time thought that the outcome of all this conflict between legislature and court was likely to be an amendment to our Constitution depriving the court of all power to set aside a legislative enactment dealing with private monopoly. Our courts do not today possess the confidence of the masses as is evidenced by the favor with which this demand for the recall of judges and the decisions of judges meets whenever it is put to the test of a popular vote. The reason for this is to be found very largely in the disposition of judges, especially of federal judges, to invade the legislative domain and restrain legislative action. In no other civilized land, so far as I know, do courts possess the power to set aside the deliberate act of the legislature, and unless they exercise that power with extreme caution in this land of ours they will be deprived of it.

I have no patience with the idea so persistently urged in certain quarters that no man has any just regard for the rights of property unless he be a judge; that the putting on of a gown, like the anointing of the prophets of old, endows him with some especial spirit of fairness.

The law of the land has declared that the legislative branch of the government may regulate railway charges. It has provided that the abuse of that power may be restricted by the courts. So long as the power is honestly and fairly exercised, the only relief against it must be by an appeal to the legislature itself. Many years ago I began to urge my railroad friends that their true interest lay not in obstructing regulation, but rather in making it fair and intelligent. Every day adds to my conviction that this is profoundly true. Your real protection, gentlemen of the railway world, lies in the intelligence and justice of the regulating body, whatever that may be.

It will come to this: the railway rates of this country will be established by commissions, state and federal, of which the federal commission will be the most significant both because the rates upon which it acts are of the most consequence and because its decisions will finally command the respect of state commissions. The people will be content to keep their hands off the conclusions of these bodies

and will insist in the main that the courts shall be equally respectful. The qualifications of these tribunals is the all-important thing to the railways.

Many years ago I said in jest that if ever the Interstate Commerce Commission was worth owning, the railroads would own it. That statement I must retract. The Commission has become worth owning and the railways do not own it. So far as my observation goes, they have never attempted to own it, and let me urge you, gentlemen, to most resolutely persist in this course. If by any chance it should come to be believed that you dominated that body it would be of little service to anybody. Just in proportion as the Commission is understood to be and is independent of all influence, both upon the side of the shipper and the railway, it may be of benefit.

Speaking to shipper and railroad alike, let me say: Put into that body the strongest men who can be induced to go there. In the past the position has not been an attractive one. In the future it will be more likely to draw to itself men of ability. The work is arduous and the responsibility is great, but the position is becoming one of greatest authority, and the exercise of that authority will finally come to carry with it distinction.

When the proper man is appointed, educate him. Do not call him a fool. You may entertain that opinion and your opinion may be justified, but none the less, the process of education is not best conducted in that way. Remember that he is a novice, give him your point of view, get if possible his point of view. It may happen that a railroad traffic official will himself learn something while educating his Commissioner. Let me impress upon you that it is of the greatest importance that you should present accurately and forcefully the considerations which have induced you to make the rates which you defend. I do not say the reasons because it frequently happens that there are none.

When once you have educated your Commissioner, keep him. Even if he be not susceptible of education according to your way of thinking, still if he is an honest man, keep him. Age gives to wine a mellowness which nothing else can; time gives to an Interstate Commerce Commissioner ability which nothing else will; he comes to see things from more angles and by a different light. Unconsciously he grows wiser, and without quite knowing how or why,

becomes more capable of viewing and deciding. In no place does more experience count for more.

I do not myself favor a life tenure. The present term is long enough, but reappointment should be a matter of course unless there be some overwhelming reason to the contrary.

What is to be the final effect on railroad investments? This is the question to which you desire an answer.

That answer, however, I can give you no better than you. When the day of pressure comes, I shall not be there. I know not who my successor will be, nor whom he will have for his associates. Let me, however, state the elements which should determine that answer as they present themselves from my standpoint.

This property of yours is at the foundation of all industrial and commercial activity. Until everything changes railroads will be the same absolute necessity which they are today.

No great railroad system today need fear that its business will be seriously invaded by any competitor. The construction of new lines of railway which will seriously interfere with the present flow of railroad traffic is hardly a serious possibility. While the traffic of particular lines may be less, and while there may be serious temporary falling off in the traffic of all lines, broadly speaking, the volume of business transacted by the railroads of the United States today will not in the next one hundred years be less.

The character of the business is such, and the conditions under which it is conducted are such, that while transportation charges by rail cannot be indefinitely increased, they can be advanced by the railroads provided the government consents, to a point which will at all times pay munificent returns upon the property invested.

Looking at this matter from all possible angles, there is but one doubtful feature today, and that is the attitude of the government itself. What charges will the Interstate Commerce Commission, if that continues to be the regulating body, permit?

Every intelligent man knows, and must feel that it would be rank injustice to require railroad investment to earn less than other investments of the same grade. Every intelligent man must know that to force down railway charges below a fairly remunerative point would so impair the credit of our railways as to prevent them from properly discharging their functions as public servants. When honesty and public interest combine to secure to our railroads rates which are fairly compensatory, I cannot believe that this privilege will

ever be denied. If the time does come when railroad property is sacrificed to popular clamor, when the public demands its confiscation and the regulating tribunal concedes that demand, no property will be of much value. The day will have come when the obligation of private rights is no longer observed.

Please note exactly what I am predicting. It is that under government regulation railway companies will be allowed earnings fairly commensurate with other enterprises of the same class. The happenings of the last fifteen years have entirely changed the character of railroad property. No form of investment today is, no form of investment in the future will be more certain than railway stocks and bonds. As certainty increases, the rate decreases.

I am not saying to you that the average railway dividend of the future will equal the rate of commercial discount. I doubt if it does or should. I am not suggesting for a moment that the income from railroad investment will compare with that in manufactures or in commerce, for it ought not to. You should not compare the net proceeds of railways with the proceeds of banks, for example, for the order of the investment is not the same. In the last fifteen years few forms of investment have surpassed banking, but I well remember the time many of us who owned bank stocks, not only lost our entire stock holdings but were forced to pay assessments of an equal amount. The worst which could happen to the stockholder of any great railroad system would be the temporary suspension of dividends, and even this could only occur under very unusual circumstances.

You may not agree, and will not agree with the regulating tribunal as to the amount. My friend Willard, of the Baltimore & Ohio, believes that he should pay his stockholders 6 per cent., and put into his property $1\frac{1}{2}$ per cent. My belief is that 5 per cent. is enough, but I would not find fault if he added to the value of his property $2\frac{1}{2}$ instead of $1\frac{1}{2}$ per cent. In process of time conditions may change so that a rate of return which is today fair will be either too great or too little, but the time never can come so long as we are a great and civilized people living under a government which respects rights of private property, when a legitimate return upon this form of investment will not be permitted.

To my mind the most active storm-center in forecasting the railway future, both as to the investor and the public, is the labor situation.

In the upper stratum of society small progress has been made in the last twenty-five hundred years. Men of the highest intelligence think no better, express themselves no more clearly, live generally in no greater comfort than in the days of Socrates. But in the lower strata the greatest improvement has occurred; and nowhere is the condition of the laboring man probably as good on the whole today as in this land of ours. It is most significant that the English miner is demanding a minimum wage of \$1.25 per day, while the anthracite mine workers demand \$2.75, if I remember that figure correctly. Even so, it is doubtful whether the laborer yet obtains his proper share of the value of the product which he produces, and if you can show me any way by which he can be given a greater share, or by which what he earns can be made to maintain him in greater comfort than now, I, for one, stand for it.

I believe in organized labor. Capital is of necessity organized, and labor must also organize if it would cope successfully with capital. But combinations of labor like combinations of capital are in the nature of monopoly and may be tyrannical and oppressive.

No form of labor is more highly organized than railway labor in certain classes, and the very fact of this more perfect organization has enabled that labor to secure excellent compensation in comparison with other forms of labor. I do not intimate that railroad wages are too high, for I have no thought of that sort.

Suppose organized railway labor makes a further demand for increased wages, and that the railroads accede to this demand. The increased wage adds to the expense of operation and reduces net revenue. The railroad applies to the Interstate Commerce Commission for leave to advance its rates on this account. What now is to be the answer of the Commission?

The railway rate is paid by the whole body of the public. If, therefore, this increase in wages was unjustifiable, and if on that account an increase in rate is allowed, it results that the general public, including all other forms of labor, is required to pay what is unreasonable. Must not, therefore, the government be satisfied, not only that the added wages are paid by the railroads, but that they are necessarily and properly paid? And is not the railroad thus placed in a most unfortunate and embarrassing dilemma?

Consider this matter for a moment now from the public viewpoint. It was recently suggested that certain demands would be made by railroad labor in a certain section of this country, which

would be supported; if not complied with, by a general strike of all classes of trainmen. Such a strike would be altogether possible today. Think for a single moment of the consequences: suffering, riot, death must result. Ought not the public to protect itself against the consequences of such possible action?

We have the Erdman Act, and this has given most admirable results, but that is a peace-measure obligatory upon no' one, and of no value in time of war. I have believed that it would finally be found necessary to provide by federal enactment that no strike shall be declared by organized labor upon any interstate railroad until the question at issue has been submitted to arbitration, and a certain length of time has intervened after the award, and after notice that the strike would be inaugurated notwithstanding the award. It is doubtful if we could compel either the railroad or the employes to comply with the award, but certainly in view of the stake which the public has, the government may require of the railroad as its servant upon one hand, and of organized labor, as a condition of its organization upon the other, that the use of these public facilities shall not be interrupted until every attempt has been made to avoid that necessity.

Probably neither party would approve such legislation. The railroad manager would say that every arbitration means a compromise that he must as a matter of fact, although nominally a free agent, comply with the award, which is probably true, and that, therefore, you take out of his hands the management of his property.

The employe would object because he is thereby to an extent deprived of a weapon of offence in the enforcement of his claim, and since it would be difficult for organized labor to enforce a strike against public opinion in case of an adverse decision.

But is it not after all for the interest of all parties that these questions should be settled by peaceful methods rather than by the waste, the misery, the possible bloodshed of a great strike, and is it not better for both parties that the government should have sanctioned the increase if one be made, and must, therefore, of necessity sanction the increased rate with which to meet it if need be?

I have made this suggestion, however, not for the purpose of suggesting a remedy, but simply because the thought has been presented to me as one charged with the regulation of railway rates. It has been to me a difficult question to determine exactly what my

duty might be in a case of that sort, and it will come to my successor in precisely the same form. He should, if possible be relieved from that embarrassment.

I have said to you that I began my business life here in Pittsburgh thirty-six years ago. Since then, while passing there frequently, I have never stopped even for a single train but once. As I stand tonight almost at the end of my business life, the interval and its changes are forcibly presented. The unavoidable inquiry is: what of the thirty-six years to come?

For one, I feel no apprehension. Breakers there are in front of us and about us, but we shall successfully pass them. In the next thirty-six years, Pittsburgh will not probably show the material development of the same period in the past but it will be a great and prosperous city. The same railroads will serve it, and that service will still be of the same fundamental importance to the shippers.

The Traffic Club I hope will still dine and philosophize and the investor will turn then as now to railroad securities in some form, perhaps with a government guarantee, when in search of a high grade article.

THE RAILROAD TRAFFIC MANAGER—THE LEADING AMERICAN STATESMAN

BY THE HON. FRANKLIN K. LANE,
Member Interstate Commerce Commission.

(From the California Outlook.)

I asked Mr. Harriman, when he was a witness before the Interstate Commerce Commission in the merger inquiry, if he fixed the rates on freights upon his railroad system. He answered that he did not, that all rates were fixed by traffic officials, chief of whom was the traffic manager.

"And do these traffic officials base the rates upon any relation between your rate and the capitalization of the company?"

"No," he said, "I doubt if they even know what the capitalization is."

This is probably a fair statement of the condition which obtains upon the two hundred and thirty thousand miles of railroad in the United States. Rates are made by the traffic managers whose function is to secure traffic for their roads, and who make rates upon which that traffic will move, without considering whether any individual rate yields is proportion of the fixed charges of the railroad.

There is in theory a minimum below which the traffic manager can not fix the rate, and that minimum is the actual cost of transportation. Any return above this is a profitable rate, because whatever the difference between the rate and the actual cost of transportation increases the fund available for the payment of fixed charges and dividends. This is in every sense the American theory of railroad rate-making upon which almost one quarter of a million miles of road have been built which yield annually a gross return of more than two thousand million dollars.

Because of the latitude which he enjoys in fixing a rate and the effect which such rates have upon the rise and growth of communities, it is not a figure of speech, and in no sense an exaggeration to say that the American traffic manager is the most powerful and important factor in the internal economy of the United States. He is a statesman. His policy, it may safely be said, more certainly tends to determine the character of a community than the policy of any

legislature. It is more essential to the business interests of a community that he should consider its welfare than it is that its laws should be equitable or their enforcement prompt and certain, for he has it within his power to raise a city into being by the preference of a locality, or by discrimination to deny to the most naturally favored locality the power to rise out of villagehood. He can determine what kind of fuel shall be used upon the farm and in the city, what margin of profit the orange grower of California, or the wheat raiser of the Dakotas shall enjoy. The rates which he makes and the facilities which he furnishes determine for me the nature of every meal that I eat and who shall produce the food products which go to make that meal, within what radius I shall be permitted to gather the milk and the eggs, the butter and the bacon, the cornmeal, the canteloupe, or whatever else may constitute my meal. Upon his judgment turns my opportunity to build my house of wood, or of brick, or of stone. He says whether I shall use cement that comes from Germany or from Kansas. He gives to me, or he denies to me, the option of using French plate glass or Pittsburgh plate. He sustains or sets at naught each item of the protective tariff. He permits, or he denies, to the cotton mill of Georgia the right to enter the markets of the Orient. He fixes the value of each acre of land from the Penobscot to the Columbia and foreordains the rise of Kansas City or Minneapolis as certainly as if he had been granted the powers of the Infinite One.

No one familiar with traffic conditions in the United States can deny that this unprecedented power is exercised by the traffic managers of our railroad systems. Let me more specifically illustrate the great responsibility which rests upon these private officials and the power which they may exercise; and these illustrations are drawn directly from actual conditions.

John Smith invents a kind of pipe which for irrigation plants, mining purposes, and similar uses, is preferable to any other pipe on the market, and can be produced for less than any other. He establishes his plant near the source of material where his competitors have their plant; but by a classification which makes a rate, he finds himself unable to lay down his pipe at the point of demand in competition with the pipe of his rival, and after years of struggle is compelled to sell his plant for a tithe of what it cost and under a new classification soon sees his plant develop into a great industry in the hands of his late rival.

One city enjoys the privilege of stopping a raw product while in transit and converting it into a finished product while it is on its journey, and thus becomes a great manufacturing center. Another city enjoys the right of stopping the cattle or the grain of a vast territory and treating it as its own for a time, and thus arises a great exchange market. An industry arises under the stimulus of a high protective duty, and a free trade traffic manager offsets the value of that tariff by the reduction of rates from the seaboard. The government expends millions to render a city accessible by water and a railroad by an adjustment of its rates contravenes the intention of the Government.

But there is no necessity of multiplying illustrations of this kind, because they are familiar to all. The traffic manager makes the rate, and in making that rate he determines the industrial and social life of a community. It is to me a constant and a growing surprise that this vast power has been exercised as beneficently as it has. When we consider the tens of millions of railroad rates that are in force and are used each day, and upon which turn to so great an extent the welfare of individuals and communities, it is a matter of wonder that there is not much greater complaint of favoritism, discrimination and unfairness than is now made.

Manifestly, however, such power should not be permitted to go unrestrained by any influence save the judgment of the traffic officials or the self-interest of those that control the railroad. The railroad must get business; it must have freight to handle; and it may be to the interest of that corporation itself—that its own best interest immediately will lie in a rate policy which will be unjust. Therefore it is not to be said that the self-interest of the railroad alone will surely lead to a wise and fair schedule of rates. Out of this fact has grown the Interstate Commerce Law. It is thought by a great mass of our people that this law is based upon the assumption that an administrative body can more safely be depended upon to fix the railroad rates of the country than can the traffic officials. This is a fundamental misconception. The law is based upon the theory that the rates of the country are reasonable and just, and to the Interstate Commerce Commission is given the power to deal with those rates which appear to be unreasonable, unfair, or discriminatory. The law gives a presumption of reasonableness to the rates as fixed by the traffic managers and in effect erects every rate filed by a railroad with the Commission into a law; and from

that rate there can be no deviation by railroad or shipper without breach of the law.

The railroads themselves have been slow to appreciate the value and significance to them of this measure. The law of the United States gives to the traffic manager of a railroad the power to fix the charge which will be made for carrying the wheat of the Middle West, or the cattle of the Southwest, or the structural iron of the East, or the boots and shoes of New England, or the cotton of the South; and upon filing that rate with the Interstate Commerce Commission 30 days in advance of its going into effect it is as binding and absolute as if the rate itself had been incorporated into a statute and passed by Congress and approved by the President of the United States.

Here is a power, then, vested in a traffic official not only to make a rate, but to make a rate that is a law from which there can be no deviation without incurring the penalty of fine or imprisonment.

To protect the community, the shipper and the railroad are denied the right to agree upon any different rate, or by any trick, device or subterfuge, to accept or pay a different rate than the one published with the Commission. To protect the railroad the shipper is prohibited from even so much as asking any rate other than that legally filed. And the burden is placed upon both shipper and railroad to know what the rate is and adhere thereto. The courts have unequivocally held that the published rate is the one rate which could be charged, and only through the medium of the Commission can that rate be altered except by the carrier itself. The railroad may not make a valid agreement to maintain an existing rate for a certain time; it may not legally contract to meet the rate that any other railroad makes; and a court may not enjoin a carrier from demanding and collecting even an unreasonable interstate rate.

The philosophy of our Federal railroad legislation, therefore, may be summarized in these words: The railroad makes its own rates subject to no limitation or restriction except those found in the Act to Regulate Commerce, that such rates shall be reasonable, nondiscriminatory under like conditions and circumstances, and that the rates shall be made to meet the requirements of the long and short haul clause. The Government accepts these rates as presented

to it by the railroads, gives them the stamp of its *prima facie* approval by accepting them for filing; and by this act converts a rate which hitherto has been a matter of contract into a legally fixed and imposed transportation charge.

Thus far it will be seen the act is entirely in the interest of the railroad, excepting as it may be to the interest of the railroad to deviate from the provisions of the long and short haul section. What, then, has been done to safeguard against the exercise of the too arbitrary and unwise exercise of so vast and practically unlimited power? A commission has been created whose judgment may intervene between that of the public and that of the railroads, which intervention, however, shall be subject to the review of the courts under the guarantees of the Constitution against taking property without due process of law and confiscation. The Commission may regulate what has been done. It is not a creative body. It can not initiate rates. It may not say, as may the English commission, that a railroad is exceeding its legal maximum, because no such maxima have been fixed in our law. It may, however, withhold its approval of an individual rate or of a schedule of rates, before such rates go into effect, as may the commission of Canada. Its function is to correct an abuse of power, and for nearly twenty years after the enactment of the original act the Commission could give to the shipper or the aggrieved community no remedy save that of its formal declaration that rates in force were unreasonable or unjust. Upon the failure of its efforts through the courts to enjoin the wrong that in its judgment was being done another remedy was substituted by the Hepburn Act; or perhaps it would be proper to say that a new remedy was granted—the power on the part of the Commission to fix a rate which should by order of the Commission go into force for a limited period unless by appeal to the courts the enforcement of such order was stayed. In other words the rate-making power of the Interstate Commerce Commission is in the nature of a remedy, of which the Commission may avail itself as against what it regards as an illegal exercise of a power granted to the railroads by the Government. All the remainder of the act is ancillary to these provisions.

It is unfortunate that railroad men have not yielded more gracefully to the imperative demand of the people for effective regulation, but this I take to be but another evidence of the extreme conservatism of the American people. We have been raised under a phil-

osophy which taught that governmental interference with the individual will was tyranny, and the physical conditions obtaining in this country have been so extremely fortunate, there has been such opportunity for each individual to go his own way without clashing with his fellows, our land has been so abundant, the opportunities have been so many, that we have come readily to believe in our inalienable right to do as we please.

The scope and effect of the decisions which the Supreme Court has been rendering throughout the past 30 years, establishing the true relationship between the public service corporations and the public, have not been appreciated, and perhaps not understood, by the body of railroad officials. The most primary principles of the common law, when given expression by our Supreme Court, were regarded as revolutionary; and when these principles have by statute been adapted to the new conditions of modern life, our men of finance have taken fright and stampeded each other into a condition of panic. A more intimate knowledge of the history of the American people would reveal to them, however, the startling fact that the United States, judged by its legislation, is the most conservative of the world's great nations. How long this will be true depends, in my judgment, upon the wisdom of those who control the great enterprises of the country, and especially the railroads.

From what I have already said it must be apparent that it is within the power of the railroads themselves to avert hostile legislation and insure to themselves entirely fair treatment. It is not to be expected that a railroad, touching the people from so many directions and so intimately affecting their industrial life, can always avoid criticism, or that so great an enterprise as an American railway system can, no matter how earnest the desire of its officials, avoid mistakes which give just reason for complaint, but the spirit of the present law is based upon the theory that the railroad can, if it will, deal honestly and fairly by the people, and that the foundation for complaint will be so slight that it will be within the power of a comparatively small number of Government officials to bring about just and equitable treatment for the tens of thousands of communities in this country and our multitudinous industries, each of which is jealous of its rights and keenly alive to discriminations that bring it injury. Upon the shoulders of the American traffic manager largely rests the responsibility for the character of our future railroad legislation. If he fails to realize this fact the

present legislation will be supplemented by measures founded upon an entirely different theory.

The prime achievement of our time has been the assertion by the whole people of their supreme authority. Underneath all else—whether it be the consideration of conservation policies, pure food laws, ballot reform or railroad regulation—there is evident the determination by the people that this Government shall be their Government, that its policies shall be their policies, and that there shall be no one group, class or interest whose will shall be permitted to override the sober judgment of the people and their own estimate as to what is most beneficial to the community. Viewed in this light the contest over rate regulation has been a democratic movement, and after a protracted struggle of twenty-five years the Government may be said to have finally proved two things—that it could control these common carriers and that it intended to. To say this is to say much. How powerful the influences against regulation have been no one can say. It has been recognized that the battle over railroad regulation was a test of strength between the people and organized wealth, and there has come to the people a new faith in our Government, a greater confidence in its future and less impatience with existing conditions, because it has been believed that in this one matter the welfare of the public has gained a victory.

How successful the regulation of privately-owned railroads will prove is still a problem. We must feel our way down to some fundamental laws by which to test the traffic manager's judgment. Mr. Sydney Brooks, perhaps the greatest of present writers on economics, thinks that Europe would not have taken to government ownership if the plan of regulating by commission as we have it in the United States had been earlier discovered. It must be remembered by those who advocate government operation that they do not by this means escape governmental regulation. The control of rates must rest somewhere, and those rates can not be fixed by some merely mechanical rule. Under government ownership, as under private ownership, there must be rate regulation; personal judgment must have its play as well as economic law.

I believe the American people have confidence in the Interstate Commerce Commission as a supervising body over the rates, rules and practices of the railroads of the United States largely because the acts of the Commission have been temperate and conservative. Our courts have never been called upon to condemn any order of

the Commission upon the ground that it confiscated the property of the carrier.

If our commerce is to grow and trade is to be fluent, if we are to continue as a multitude of interdependent communities and individuals, if we are to give the world the benefit of the great resources of this country and put to its highest use the genius for industrial development which our people manifest, our existing lines of railroad must be made profitable to their owners, and money must find that investment in railroads is both attractive and secure.

A regulating body which is not fair to those who have invested their money in a public utility does infinite damage to the community that it is attempting to serve. To be just to the stockholders, however, does not mean that injustice must be done the public. The traffic manager may not ask all that the traffic will bear without doing his railroad in the end a great wrong, nor can the shipper hope to have lasting benefit from any injustice done to those who have put their money at the public service.

RAILROAD SECURITIES

Report of the Commission Appointed under Authority of Section
16 of the Act to Create a Commerce Court,
Approved June 18, 1910.*

LETTER TRANSMITTING REPORT TO THE PRESIDENT.

NOVEMBER 1ST, 1911.

The PRESIDENT: We have the honor to present herewith the report of the Railroad Securities Commission, appointed by you in August, 1910, in accordance with section 16 of the Act of Congress approved June 18th of that year, and organized in the month immediately following.

Early in November, 1910, a notice was issued through the public press inviting all persons having information or proposals concerning the questions under discussion to transmit the same to the Commission. Specific invitations to appear before the Commission or to transmit opinions were also extended to railroad officials, members of various State Railroad Commissions, financiers, authors of books and articles regarding railroads, business men, representatives of commercial, manufacturing and shipping organizations, bankers, lawyers and promoters of railroads and of their securities.

Public hearings were held as follows: Washington: November 28, 29, December 1, 1910; New York: December 15-22, 1910, inclusive; Chicago: January 23-27, 1911, inclusive; New York: March 6-7, 1911.

At these meetings thirty-four witnesses were heard. The opinions of a still larger number were obtained at informal conferences and by individual members of the Commission. Several hundred letters were sent to other individuals or associations by whom the subject had been considered, and the views received in response to these requests transmitted to the members of the Commission and duly considered by them.

The accessible literature of the subject was collected by the Secretary and examined by the members of the Commission as fully as the circumstances allowed. Much study was given to the debates in Congress leading up to the passage of the Act under which the Commission was appointed. A personal inquiry into foreign conditions was made by the Chairman in October, 1910.

*Passages underscored by the editor.

The Commission has not considered the comparative merits of government ownership of railroads and private ownership under governmental regulation; nor has it attempted to enter into the discussion regarding control of railroad rates, except as to their relation to the issue of securities. It has adhered to the terms of the Act of Congress which confines the functions of this Commission to the consideration of questions connected with the issuance of stocks and bonds by railroad corporations.

Respectfully submitted.

ARTHUR T. HADLEY,
Chairman.

WILLIAM E. S. GRISWOLD,
Secretary.

In his letter of December 8, 1911, transmitting the report to Congress, President Taft said: "The report evidences for itself the careful consideration which it has received from the Commission, and I heartily concur in the recommendations it contains, and urge that appropriate action be taken to carry these recommendations into effect."

REPORT OF COMMISSION.

NOVEMBER 1ST, 1911.

The PRESIDENT: The undersigned have the honor to make to the President the following report as responsive to Section 16 of the Act of Congress approved on June 18, 1910, the material portion of which reads as follows:

That the President is hereby authorized to appoint a commission to investigate questions pertaining to the issuance of stocks and bonds by railroad corporations, subject to the provisions of the Act to regulate commerce, and the power of Congress to regulate or affect the same * * *.

1. RAILROAD SECURITIES AND INTERSTATE COMMERCE.

The railroad companies of the United States, with only one important exception, owe their present corporate existence to state charters and are subject to state laws regarding their issue of stocks and bonds. But a large and growing proportion of their business is interstate commerce, regulated by federal authority. There is a widespread belief that the rates charged on this business are affected by the amount of stocks and bonds outstanding; that much stock has been issued without being fully paid; and that the dividends

on this stock represent an unnecessary tax on interstate commerce. The railroad men as a rule deny that the amount of capital of the roads, either nominal or actual, is seriously considered by their agents in making rates. But it is frequently treated by counsel, commissions and courts as a thing of importance in determining whether rates are reasonable. If capitalization has an actual effect on interstate rates, the federal government is interested in its control.

There is still another way in which the issue of stock for less than par may affect the conduct of interstate commerce. The bondholders who loan money to the corporation may be led to believe that there is a real security behind the bonds equal to the face value of the stock, when in fact a portion of this value represents nothing more substantial than the expectation of the promoters. So far as this deception affects only the individual bondholder, we may leave it to state law to protect him. But if such deceptions become prevalent they inevitably affect the confidence of investors as a body, and our American railroad systems fail to get the full amount of capital needed for their development and for the proper conduct of their interstate business. It is a matter of direct concern to the federal government that the facilities for handling commerce between the states should not be impaired.

These facilities embrace not only steam railroads, but the other agencies of communication and transportation enumerated in the Act to Regulate Commerce. While for brevity the language of this report is largely confined to railroads, the discussion and recommendations apply generally to these other agencies.

2. PRESENT REQUIREMENTS AND FUTURE POLICY.

Starting from different points, investors and shippers, and through them the general public, have come to feel that state legislation has provided inadequate security for their interests in this matter. The question is therefore asked with increasing frequency whether the United States Government should not undertake to regulate the issues of securities by the roads engaged in interstate commerce as a necessary means to its effective control. This question naturally divides itself into two parts: First, what immediate action by Congress will best meet the existing situation; and second, what general principles should guide the federal government in its future legislation on this subject.

As far as concerns the immediate action of Congress, we believe that stringent provisions regarding publicity of stock and bond issues, which will show how far the laws are obeyed, and will enable the federal government to hold the railroad officials responsible for the consequences of not obeying them, will be more salutary and more effective than any new statutory demands. So long as the railways engaged in interstate commerce are chartered by the states and subject to state laws regarding their securities, added federal restriction will tend to create further confusion in a situation already too complex.

But we also believe that the time is near when the difficulties of the present system of dual control, and the conflict of state laws, will become so manifest that further legislation on the subject will be imperative. Unless the constitutional power of Congress to regulate the securities of railroads engaged in interstate commerce is definitely established as being, to the extent that Congress acts upon the subject, exclusive of State control, one of two things seems likely to happen: Either the federal government and the governments of the several states will come to a common understanding as to the principles to be adopted in the control of security issues, or the railroad systems will be given the opportunity to exchange their State Charters for Federal ones. We have therefore discussed in some detail the principles which ought to govern the stock and bond issues of railroads in the United States. Whichever alternative we adopt, we ought to have such a set of principles before us. If we are to bring about a common understanding, we need them as a basis of negotiation. If we consider federal incorporation of railroads the more desirable or practicable alternative, we need them as the groundwork of a federal incorporation law, of which our roads may avail themselves when their interests and those of the public require it. Under the terms of the Act of Congress creating this Commission, it has not considered, as an alternative to these possibilities, the direct ownership of the railroads by the government itself. In that case the government would issue its own securities, and none of the questions submitted to this Commission would then arise.

3. THEORY OF RAILROAD STOCK ISSUES.

Everyone knows that railroad securities are divided into two classes, stocks and bonds; very few people apprehend as plainly as

they should the distinction between the two, or understand the real nature of a share of railroad stock. As to the real nature of a railroad bond, there is no doubt at all. It is essentially a note made by the company; a promise to pay a certain amount of money, say one thousand dollars, at a specific date of maturity, and to pay interest at specified rates in the meantime. The obligation is definite. The value is limited by the terms of the instrument.

But a share of railroad stock is of a different, and more complex, character. It represents two things instead of one: That a certain sum has been paid in, and that the holder of the stock has a certain *share* in the ownership of the property, of whatever value that may prove to be. The second of these things is what ultimately gives the stock certificate its value. In the case of a railroad bond the fact that it calls for one hundred or one thousand dollars is a determining factor in what it is worth. But in the case of stock, the fact that the certificate represents one hundred or one thousand dollars is far from being the determining factor. It is but one incident among many. Even in theory it purports merely to show that this was the amount originally paid by the subscriber when the road was built. It does not create an obligation to pay its face value, nor does that face represent its money value as a share. The value varies with the development of the property as a whole. If it has been wisely located and well managed it will be worth more than the amount it represents. If it has been unwisely located, or badly managed, it will be worth less than the amount it represents. The shareholder chose his investment, elected his management and took his risks. If he acted unwisely and fares badly he has no claim that the public should indemnify him. If he did well, the public can not either rightly or wisely fail to recognize and reward his foresight, so long as his road is managed with proper regard to the interest of the community, and for the development of the traffic which it carries.

The principal of a bond is a fixed sum, its interest a fixed charge. The value of a share of stock is essentially variable, its profit essentially indeterminate.

There is a persistent tendency to ignore this distinction; to emphasize unduly the face value of the stock; to treat the shares in a railroad or other public service corporation as claims against the

community for the number of dollars they represent, rather than as fractional interests in a more or less hazardous enterprise, in which the investors took risks of loss and chances of profit; to allow corporations to claim immunity from public regulation when the dividend on the face value of the shares is below the prevailing rate of interest; and to subject them to vexatious attacks when this dividend is above the prevailing rate of interest, even when such profit may be a fair compensation for risks actually incurred in the past or a necessary incentive for the investment of new capital and the taking of new risks in the future.

4. STATE LEGISLATION REGARDING STOCK ISSUES.

Nowhere has this tendency been more marked than in the legislation of the several states regarding stock issues of railroad corporations. It has led our law makers to lay too much stress on keeping down the nominal amount of stock, and too little upon getting the actual amount of capital needed and having it properly used.

Nearly all the states require that railroad stock issues should be paid in full at their face or par value. Eighteen have this provision in their constitutions; a majority of the others have more or less definite laws to the same effect. Even without such specific statute the requirement that the shareholder may be called upon to meet the full value of his stock subscription is operative in the absence of legislation to the contrary. Of such legislation there has been relatively little. West Virginia alone, among all the states, expressly sanctions the issuance of stock at less than par, although there are several others where exceptions to the rule of full payment have been allowed, either by general statute or by special act of the legislature in particular cases.

5. EVASION OF STATE LAWS.

Where the strictness of the law regarding capital stock has interfered with the building of railroads in new communities, evasion of its letter or spirit by railroad companies has been frequent. The very rigidity of the statute has caused the public to be negligent in its enforcement. In some cases the laws have been so drawn as actually to invite evasion, by specifically leaving it to the judgment of the directors to decide what constituted an adequate consideration for the shares. The companies have thus been enabled to represent that their stock was fully paid, when this was not in fact the case. Sometimes stock has been issued by the promoters of a company to

themselves as a reward for their services in organization and management. Sometimes it has been issued in exchange for rights of way and other forms of assistance to the construction of a new road, without much regard to the cash value of the consideration received. Sometimes it has been issued to stockholders to represent the increased value of their property, actual or prospective, on the theory that such value represents undivided profits which the stockholders have not received or do not receive in cash, and are therefore entitled to obtain in script. Sometimes it has been issued in reorganizations, consolidations, or in exchange for the stock of other companies, on terms not really warranted by the facts in the case. Sometimes stock so issued as full paid has been given as a bonus to induce people to subscribe for bonds.

Besides these direct methods of evasion, there have been more indirect means of reaching the same result. Lines have been built through the agency of construction companies and paid for by the issue of securities whose face value considerably exceeded the actual cost of the roads themselves.

All these practices, with the possible exception of the one last named, have been much more frequent in the past—particularly during the great periods of railroad expansion from 1853-57, 1869-72, 1879-82—than they have been in recent years. This change is not wholly due to increased stringency in the laws. It is partly due to wise administrative measures for their enforcement, and partly to the increased demands of investors in bonds for the real data as to the security underlying them, which has compelled managers of corporations to give greater publicity as to the real facts. The Chicago & Alton reorganization is the only instance in the last decade which has been brought to our cognizance where the public has been offered a large issue of railroad stock (as distinct from the stock of a holding company), based merely upon an estimated increase of value. Recent attempts to capitalize expected profits in connection with other public service corporations or with industrials, do not come within the scope of this inquiry.

6. DANGER OF EVASION OF FEDERAL LAW.

A federal law requiring full payment of all stock issues, without special machinery to enforce it, could be evaded as state laws have been evaded in the past. In fact, the liability to evasion might be greater, because in some parts of the country a statutory requirement

of this kind, imposed by the federal government, would be regarded as an interference with the rights of the several states; and local companies attempting to build new lines with stock not fully paid might have the support of local public sentiment in so doing. It is possible that in some instances the federal government could not even count upon the vigorous assistance of the state authorities themselves in trying to enforce such an Act at all rigidly. Such a federal requirement superadded to the state requirement might simply mean that every company would be led to make two deceptive returns instead of one. A federal requirement conflicting with a state requirement might leave us in an even worse case; for the impossibility of obeying both authorities would be made an excuse for obeying neither. This would clearly be true until the paramount authority of the federal government was established.

7. ENFORCED UNIFORMITY NOT YET ATTAINABLE.

To make legislation of this kind effective, it would be necessary to provide federal agencies for carrying out its requirements in detail. We should be compelled either to burden the Interstate Commerce Commission with a large amount of additional work, or to create a new commission to supervise railroad incorporation and construction in different parts of the country.

If we were ready to substitute exclusive federal control for the jurisdiction of the several states over their railroad corporations, much could be said in behalf of the establishment of a national authority to supervise both the issuance of stocks and bonds and the actual expenditure of their proceeds. But, apart from the constitutional difficulties which might stand in the way of such a procedure, your Commission is of opinion that, as a mere matter of expediency, the time is not ripe for any such immediate or forcible transfer of jurisdiction. The local needs of different parts of the country are still divergent. Many railroad problems, both of operation and of control, are still in the experimental stage. Enforced uniformity under federal law would, in the opinion of many, discriminate against the development of new territory, and the formation of independent companies; for a well established system has less difficulty in securing the necessary capital by pledging its credit than an independent projector wishing to develop a new district. These dangers and difficulties may have been somewhat exaggerated. While they undoubtedly exist in certain cases, they are

of a sporadic, rather than a general, character. But they are urged with much force, both by state railroad commissioners and by independent builders; and they would constitute obstacles to the effective enforcement of a federal statute. Before such a statute is enacted, it should be clearer than it now is that public opinion would support it. Under such circumstances the immediate assertion of exclusive federal jurisdiction under one general railroad law appears unwise.

Until such exclusive jurisdiction can be established, the creation of a separate administrative body subjecting the railroads of the country to a new system of concurrent supervision, in addition to the many old ones which now exist, does not seem just, expedient or economical.

8. ENFORCED PUBLICITY IMMEDIATELY NEEDED.

In place of any added federal requirements concerning payment for capital stock, your Commission recommends the adoption of provisions regarding publicity which will show the actual facts regarding stock and bond issues in the several states, and the consideration received therefor. Any railroad doing interstate business which issues bonds or stocks should be required by statute to furnish the Interstate Commerce Commission, at the time of the issue, with a full statement of the details of the issue, the amount of the proceeds, and the purposes for which the proceeds are to be used, followed in due time by an accounting for such proceeds, as more fully hereinafter set forth.

An act of this kind does not limit the freedom of the several states to make any kind of laws which they please regarding their own corporations. If they want them stringent they may make them stringent. If they think they can encourage the investment of capital by permitting the issue of stock for less than par, they can allow such issues. If the result of enforcing existing laws interferes with local needs, they may change the laws. But the companies must indicate precisely what they are doing. They must not attract the bondholders' money by representing that there has been a payment of one hundred cents, when there has been a payment of only fifty cents. They may, if they please, direct the treasurer to set down their partly paid stock in the balance sheet as a liability in full; but they must make it plain to the investor today and to the public tomorrow how much of that liability was represented by

cash assets contributed and how much consisted of what is called in English balance sheets "nominal additions to capital." Such liability is of the corporation to its stockholders and not of the public to either.

9. MODE OF PROCEDURE.

Two courses lie open before us in our effort to secure publicity regarding railroad securities: Either to require the express sanction of some administrative body (presumably the Interstate Commerce Commission) before such securities are issued, or to rely on general statutory provisions under which the directors may issue such securities and be held responsible for their proper use. In the case of either of these alternatives, the accounting required must be full and adequate in every respect, and the Interstate Commerce Commission or other administrative authority must be empowered to do whatever may be necessary in its judgment to secure compliance with the statute and to prevent injury to the public. Either alternative would involve the valuation of property and services whenever such valuation may become necessary in establishing the integrity of the financial transactions involved.

The first alternative insures reasonably full publicity before the fact. Official inquiry following the formal application would tend to discourage attempts at evasion; and would probably in many instances prevent the filing of applications for issues which are questionable either because of their financial unsoundness or because they duplicate existing lines instead of adding to public convenience.

Your Commission, nevertheless, prefers the second alternative and doubts the expediency under present conditions of a general law forbidding railroads to sell securities without specific authorization in advance, it being understood that the face value of these securities is not to be construed as an obligation on the public. Authorization in advance would tend to create an impression on the part of the investing public of a guaranty or official recognition of values, which no administrative authority can safely give. The absence of such recommendation by this Commission is intended to make it clear that no such guaranty should be given. A growing railroad has constant need of money, and its officers and directors are the best judges of the amount of its annual requirements. It is manifestly to the interest of the company and of the public that a road should get its money as cheaply as it can. The policy of allowing a floating debt to accumulate with a view to its extinction

by the sale of permanent securities upon the completion of its improvements is not a good one, and should be avoided wherever possible. An administrative body whose approval was required in advance for the sale of securities would have great difficulty in always acting promptly enough to enable the roads to avail themselves of favorable money markets, and avoid the creation of floating debt, and might do its work so carelessly as to result in shielding the directors from responsibility, instead of acting as a safeguard to the public.

We are disposed to leave for the present to state commissions the responsibility of passing upon the questions of public convenience and necessity involved in the building of lines to be constructed within the limits of their several states, and to rely on full publicity as to the use of the proceeds of the sale of securities and of other assets as a safeguard against financial abuses.

10. FACTS TO BE DISCLOSED.

With this end in view, every company should be required to furnish to the Interstate Commerce Commission at specified dates a full statement, including the names of the parties concerned, of all financial transactions that have taken place during the periods covered by the report, whether in cash, in securities, or in other valuable considerations, and whether embraced in income account or outside of it. This statement should also include the disposition of surplus. Every company should be further required to compile for the information of its shareholders facts in regard to the financial transactions of the company for its fiscal year, of such a character and in such form as the Interstate Commerce Commission may direct.

The Interstate Commerce Commission should have the power to investigate all such financial transactions and to inquire into the bona fides thereof; the right to call for the production of books and papers of railroad companies, construction companies or other companies with which the railroad company shall have had financial transactions, for the purpose of enabling it to verify any statements so furnished to it; and the power to examine into the actual cost as well as the value of property acquired or of services rendered. In all transactions investigated, from the purchase of supplies to the acquirement of new lines by consolidation, every interest of the directors should be disclosed, and adequate penalties provided for any failure to make such disclosure.

This enumeration is illustrative and not inclusive. Some of these items the Interstate Commerce Commission now requires in the reports of the companies; other items are not now required and probably cannot be under the present Act to Regulate Commerce. All of them call for facts or groups of facts which the Interstate Commerce Commission should be empowered to ascertain in the administration of an amendment to the Act to Regulate Commerce, concerning which we have prepared and attach to this report a more definite suggestion.

11. PHYSICAL VALUATION.

“Physical valuation” of railroads in its bearing on capitalization has been to some extent advocated, and to a greater extent opposed, upon the idea that, if undertaken by the United States Government, it will be made a justification for reducing the amount of the outstanding securities of the railroads to the figure thus ascertained, or for preventing them from issuing new securities when the amount of their outstanding stocks and bonds exceeds the physical value of their properties as so determined. Should a valuation of the physical property of railroads be made, it ought not, if properly applied, to involve either of those dangers.

An attempt to scale down old securities is clearly out of the question. Apart from the obvious constitutional difficulties of such a course, considerations of public expediency of themselves forbid it. The direct loss from the unsettlement of legal and equitable relations would be very great. The indirect loss from the withdrawal of confidence in American railroad investments would be immeasurable. Such a readjustment would become archaic almost from the outset, because an adjustment of securities based upon the values of today might be totally erroneous tomorrow. It would be equally inadvisable, in cases where outstanding securities were in excess of the physical valuation, to prohibit the issue of new securities until physical value had become equal to the amount of securities outstanding; because this principle, if generally applied, would prevent roads so situated from securing the capital needed for the service of the community.

Whenever a railroad company acquires new property in return for the issue of its securities, or in expending the proceeds of such securities, every means should be placed at the disposal of the Interstate Commerce Commission to ascertain the value of such

property as accurately as possible. A fundamental, though not necessarily a controlling, element in value is cost of reproduction.

This is true of property in general; it has been specifically affirmed of railroad property by the Supreme Court of the United States. Eminent railroad men who have appeared before this Commission have stated that in their opinion cost of reproduction or physical value was the most important single element in determining the true value of the railroad as a whole. Indeed, we believe it to be in the interest of railroads, no less than of those who use them, that the Interstate Commerce Commission should be given broad powers and adequate means for valuation of the physical property of railroads as one element in determining fair value, whenever, in the judgment of that Commission, this is of sufficient importance to warrant such action. This will give the public information which it is entitled to demand, and which can, in our judgment, be better and more economically obtained in this way than in any other. The attempt to oppose a system of physical valuation of this kind tends to give countenance to exaggerated estimates of the amount of water in railroad stocks.

12. RESULTS TO BE EXPECTED.

We believe that the powers granted to the Interstate Commerce Commission by the preceding recommendations may be found large enough to protect the public, without the necessity of passing a law that should require specific approval in advance of the amount and purpose of stock and bond issues.

We do not say that the enforcement of a law of this kind will be easy. The public in all parts of the country has become accustomed to the evasion of laws concerning capital stock. It is far easier to pass a radical measure which is going to be evaded than to secure obedience to a conservative one. But we are confident that full public knowledge of the facts will diminish the evils and misunderstandings described in the opening paragraphs of this report as being the chief sources of the demand for immediate federal action, and will at the same time furnish the proper foundation on which to base more thorough-going reforms.

One of these evils was that bondholders were at times deluded into the belief that there was a security behind their bonds which did not exist, and that the railroad company was mortgaging a

piece of property when it was only capitalizing an expectation. They thus entrusted the control of their money to men who had comparatively little at stake. If a profit was made, the promoters could appropriate it; if money was lost, the loss fell on the bondholders. Roads built largely with borrowed capital at the beginning have been prevented from subsequently obtaining the credit which they might otherwise command. They have therefore been less able to give to the shippers or to the travelers the facilities which are requisite no less for the convenience and safety of the public, than for the profitable utilization of the railroad itself. To the extent that we lessen debt, we shall increase the power of the roads to raise money when the public needs added facilities and shall at the same time reduce the chance of default and lessen the severity of commercial crisis.

But to most people the danger of these financial consequences seems a less serious thing than the danger that the railroads will tax the users of the road for the sake of making profits on capital not actually furnished. The necessity for paying interest on bonds, and the desirability of providing for dividends on stock are sometimes urged as a justification for increased rates; and they are frequently put forward as a reason why existing rates may not fairly be interfered with by law. To meet this danger, so far as it is a real one, and to avoid this misapprehension so far as it is a misapprehension, it is essential that the stock should be what it purports to be. If it purports to represent one hundred dollars paid in on every share, one hundred dollars should actually be paid in. If it purports only to be a participation certificate, giving a proportionate interest in any profits that may be earned, it must be understood that this is its essential character, and that if it claims any further rights than this, it must prove them by specific evidence. This is in the interest of all parties—of the honest investor and the progressive manager, of the shipper, the traveler and the general public.

If full publicity be given to the facts, we shall also lessen the fraudulent creation of debt. It is the degree of publicity as to the facts, rather than the stringency of the law, which gives the people any real protection. A stringent law inadequately enforced and secretly evaded is the worst thing that can possibly be offered the public, because it gives color to claims which have no foundation in fact.

13. CONFLICTS OF JURISDICTION.

While we do not think that the time is ripe for a sudden and quasi-compulsory transfer of the direct control of the stock and bond issues of interstate railroads from the states to the federal government, we cannot help recognizing that there are conflicts of jurisdiction in the construction, operation and financing of interstate railroads which may more and more embarrass interstate commerce and necessitate a larger degree of federal control, or even result in federal incorporation.

A road organized by an individual state is subject to state jurisdiction regarding certain rates and facilities and purposes for which securities may be issued, and is responsible to the state courts for the performance of its functions. The instant that its cars pass across the state line or that its shipments are routed to points in other states it becomes responsible to the Interstate Commerce Commission and to the federal courts. Constitutionally Congress has paramount authority over interstate commerce and by its action can abrogate any previous action of the states which may prove inconsistent therewith. Practically it is easy to see how a conflict may arise between local and national requirements regarding facilities or methods. The state may prescribe one way of doing business; the national government may prescribe another, and forbid the one ordered by the state. It is only by the care of our railroad commissioners, state and national, that serious difficulties of this kind have been avoided in the past.

Even more perplexing are the questions which may arise in connection with the control of interstate railroad rates. The local legislatures and commissions have ideas of their own regarding rates which may differ in some respects from the ideas of Congress or of the Interstate Commerce Commission. But the relation between through and local rates is frequently so close that the two sets of things cannot be arranged on independent principles. The reasonableness of the through rate may depend upon its relation to the local rate, and vice versa. It becomes increasingly difficult each year to leave a corporation free to fix its local rates subject to the jurisdiction of state commissions and state courts only.

Thus the exercise by a state of its authority over railroads organized or operating in its territory, prescribing terms on which,

and the limitations within which, it may issue securities, may directly interfere with and embarrass interstate commerce, when the issue of such securities is essential for raising funds to be applied in furnishing the necessary facilities for its interstate traffic. One or more instances of this have been brought to our attention. That they have not been more numerous is doubtless owing to the discretion and conservatism which have usually characterized the action of state commissions. Such state regulation of the security issues of interstate railroads may be wise or unwise from a local point of view; but the state determination cannot control the federal right.

This danger of possible interference with interstate commerce necessarily tends to increase with the number and activity of state commissions; and it was for the protection of such commerce against any interference that the power of regulation was vested in the federal government.

14. DEVELOPMENT BY INTERCORPORATE HOLDING.

Some states have laws compelling railroads within their borders to be organized under the laws of the states in which they are located and forbidding foreign corporations, so-called, from constructing, owning and operating lines thus located. The effect of these and other similar statutes has been largely avoided by a system of intercorporate holdings, under which a corporation organized in one state which owns the stock or the major part of the stock of a road in another state can secure the capital necessary for construction or betterment without subjecting itself to the restrictive laws of the state where the money is actually spent. One or two instances will show how this system works.

The state of Texas has a law which rigidly limits the extent to which roads in that state may be capitalized. It seems to have been the expectation of those who passed the Texas law that it would be a protection to all those interested in the proper operation and regulation of railroads. But it has had the practical effect of making it difficult to get directly by the sale of securities of railroads located in Texas, the necessary capital for their improvement; because if a road was already capitalized to an amount in excess of the official valuation of the State Commission, no further securities could ordinarily be placed upon the property for necessary improvements, until this deficiency was made good. Under these circumstances

companies organized in other states which own lines in Texas needing added investments of capital in order to handle their traffic in that state economically, frequently resort to a simple expedient. Instead of issuing securities of the Texas company they pledge the credit of the parent company and put into a collateral trust any hitherto unpledged securities of these Texas roads that they may have in their treasury, and if they have none, then other securities or property, thus issuing under the authority of another state securities whose proceeds are to be spent in Texas.

When the Chicago, Milwaukee & St. Paul Railroad wished to build its Puget Sound extension, it had to pass through several states whose laws forbade corporations chartered under laws of other states to build roads within their borders except as a connection or prolongation of a road actually built to the state line. In order to conform to these restrictions, the St. Paul Road would have had to build its line slowly, step by step, instead of doing work in several states at once and putting the road through as promptly as possible. To avoid this difficulty it had to organize a separate company to build the road in each state which had such a law. This in itself was not a serious evil; it simply involved additional expense, to have separate corporations do things piecemeal which might have been done as a unit without such intermediaries. But it tended to render state control less effective, instead of more so. The system thus forced upon the St. Paul Road would give every opportunity for deception to a road which might want to deceive.

Where a company builds its own roads, it is possible to find out what they cost and have the matter properly entered in the balance sheet; but where a corporation is artificially encouraged to divide itself into several parts, the parts that do the constructing can sell their finished roads to another part, at an abnormal profit. This transaction may furnish the parent company an excuse for an over-issue of securities. If the securities thus over-issued are paid for in full, it will put a certain amount of cash into the treasury of the newly organized company for which it becomes very difficult to hold the directors of the parent company to strict account. If they are not fully paid for, it simply means that the alleged profits of the parent company may be made the excuse for furnishing its stockholders, in the shape of a dividend payable in its own stock, a number of pieces of paper whose face value is greater than the amount actually contributed.

15. CONTROL BY INTERCORPORATE HOLDING.

Of the total amount of railroad capital outstanding on June 30, 1910, \$3,952,000,000, or more than twenty per cent of the whole, was held by railroad companies themselves. About one-third of this was bonds, and two-thirds stock. There is also a large additional amount of railroad securities owned by various "holding companies," which are not, technically speaking, railroad corporations and do not make return of their capital to the Interstate Commerce Commission, but which control the policy and direct the operation of the roads whose securities they have purchased. Any artificial stimulus to these intercorporate holdings is a public evil. Where a railroad controls the operations of another railroad by owning a majority of its stock, or where a holding company controls the operations of several roads in the same manner, we have all the disadvantages of consolidation, without getting all of its advantages. We get the centralization of financial power; we do not get all the economy of operation which should go with it.

Apart from this general danger, we open the way to several specific evils.

Where a railroad controls the operations of another road by the ownership of a majority of its stock, there is constant danger that the minority holders will not be fairly treated. The road thus purchased has become part of a large system, and is operated by the representatives of the whole system. It is almost certain that the advantage of the whole will be preferred to the separate interests of the part in matters of operation, traffic and finance.

Again, the existence of two or more companies under the same management, having separate organizations but united control, invites the concealment of financial transactions by the shifting of charges from one company to another. We have already shown how this may happen in the construction of a new road. It is equally possible in the operation of an old one.

16. FINANCIAL DANGERS.

A further effect of intercorporate holdings is to change contingent charges into fixed ones. A railroad company buying the stock of another company almost always issues collateral trust or other bonds to pay for it; in other words, it puts the stocks into its own treasury and sells the bonds to the public. As long as the road is prosperous this change does little harm. In fact, it may

appear to do good. When a company has been able to buy a five per cent stock by the issue of its own four and a half per cent bonds, there is an apparent profit of one-half per cent annually on the transaction to the company and an apparent reduction in total charges which it must meet. But with any diminution in traffic, the bad effect of the change is at once obvious. The interest on the bonds remains a fixed charge against the company. The effect of a loss of dividends would have been felt chiefly by the individual stockholders; a default, or even a threatened default, of interest has an effect on the credit and confidence of the country as a whole, and may precipitate a financial crisis.

The extent to which the credit of our railroads is being pledged is evidenced by the change in the proportion of railroad stocks and bonds held by the public. In 1899 these were nearly equal; \$4,307,000,000 stocks and \$4,336,000,000 bonds. Eleven years later the figures given by the statistician of the Interstate Commerce Commission were \$5,578,000,000 stocks and \$8,865,000,000 bonds—a serious disproportion. The growth of intercorporate holdings is responsible for a considerable part of this change. This disproportionate growth of fixed interest-bearing obligations as compared with stock is primarily the result of the issuance of bonds in payment of roads acquired, and would still have taken place even if title had been taken in fee instead of through stock ownership; but the latter method, by reason of its facility for the issue of collateral trust bonds, has unquestionably been an important factor in creating this disproportion.

So long as different parts of what is naturally a connected system of railroads are chartered by separate states there are likely to be artificial obstacles to consolidation; and while these obstacles exist, we shall find it difficult either to check the tendency toward increased intercorporate holdings, or to deal with the evils incident thereto. Each instance of intercorporate holdings thus furnishes an added argument for federal charters.

17. ALTERNATIVE METHODS.

In the present state of the law, there are two distinct methods by which we might avoid conflicts between the state and federal governments in the control of railroad stock and bond issues, and deal with the problems of construction and finance incident thereto.

One method relies on a full interchange of views between the Interstate Commerce Commission and the commissions of the several states, as a means of securing harmony. If it is possible for the members of all these different bodies to arrive at a common understanding on a question of public policy, they usually have little trouble in getting the necessary authority from Congress and the state legislatures to put a consistent policy into effect. This way of doing things was illustrated in the legislation regarding safety appliances a few years ago; it is just being illustrated in connection with control of railroad accounts today. In each of these matters a great deal of trouble was made by conflicting requirements; in each, a full discussion of the questions involved was followed by a substantial agreement on the main points, and the good sense of the several commissions prevented serious difficulties from being raised about minor ones.

Whether we could secure a similar agreement on matters of finance, where the conflict of interest between different localities is more serious and the differences of opinion are more fundamental, is open to doubt.

If the public interest of the United States as a whole should be jeopardized by these differences, we can perhaps have recourse to a Federal Incorporation Act, which shall permit railroads to exchange their state charters for federal ones. We believe that such an Act could be so drawn as to offer advantages in the conduct of interstate traffic without unduly conflicting with local interests. The most important of these advantages would be: (1) The right to construct lines needed for interstate commerce, under proper local supervision, and with proper regard for local needs, but without the agency of local corporate organizations; (2) The right to have rates supervised by a single authority which could pay proper regard to the mutual relations of local traffic and interstate traffic, instead of two separate authorities dealing with the two things independently; (3) An equitable system of taxation which would distribute to the several states their proportionate parts of taxes levied on both the tangible and intangible property of the railroad by some harmonious plan.

It is too early to make definite choice between these two alternatives. But it is not too early to indicate the principles which should guide our legislation concerning stocks and bonds in either event. For our progress toward putting these principles into effect

will necessarily be slow by either method. If we try to bring the views of different legislatures into harmony, the discussion must be deliberate in order to have any chance of success. If we rely on permission to exchange state charters for federal ones, we must give both the railroads and the states time to learn the wisdom of availing themselves of this opportunity.

If in the discussion that follows we have seemed to have more definitely in mind the adoption of a federal charter than federal control of state corporations, it is because this method enables us to make our suggestions in clearer and more concrete shape; the underlying principles and aims would be substantially the same in the two cases.

18. TREATMENT OF EXISTING ISSUES.

Whatever alternative we adopt, any disturbance but a voluntary one of the existing amounts or status of bonds or stocks validly issued is clearly inadmissible; and in general there should be as little disturbance as possible of the relations today existing between different classes of security holders. These relations often seem unnecessarily complicated, both in their provisions regarding distribution of income and in their delegation of voting powers. But the confusion and litigation which would result from the attempt to disturb them would outweigh any possible good to be obtained.

The absence of any attempt to base security issues upon revaluation will emphasize the true character of our American railroad stocks, as being essentially participation certificates giving a right to a proportionate share of whatever profits may be earned, rather than evidences that a certain specific amount of money has actually been invested in the property.

19. PRICE OF NEW ISSUES OF STOCK.

A most important and difficult question is that of the price at which new stock may be issued. We believe that no restrictions except those of publicity should be placed upon the power of the directors to issue new stock pro rata to their stockholders at or above par, even though the price received be less than the existing market value of the old stock. The experience of Massachusetts has shown that the attempt to prohibit the issue of stock below its market value has hampered the investment of capital and has distinctly interfered with the development of facilities. If this has

been the experience of Massachusetts, where capital was abundant, we can hardly expect better results in states where capital is more scarce.

A further objection to any attempt to compel the sale of new stock at a price above par is that it implies a certain warrant that this value, thus publicly fixed, will be maintained in the future, on the old stock as well as the new. In thus attempting to limit profits, it may actually tend to guarantee them.

The question whether the directors should be allowed to issue stock below par is a harder one to answer. On the face of the matter it seems as though the requirement that no stock should be sold at less than par was a fundamental principle of sound finance. So it is, if it results in the sale of stock at par; not so, if it results in the sale of bonds at a discount. If a road whose stock, for any reason whatsoever, sells below par is prohibited from issuing stock at less than par, it means that it must raise all its money by bonds. It is compelled to go more and more deeply into debt. The worse the financial position of the road, the stronger is the compulsion and the heavier are the interest charges on the bond. To compel the weaker roads to pursue their present policy of issuing fixed interest-bearing obligations by reason of their inability to sell stock at par may before long, by reason of a large crop of receiverships, result in intensifying the acuteness of the next panic and in prolonging the subsequent business depression.

If the stock bears upon its face the statement that each share represents a contribution of one hundred dollars or any other specified sum which constitutes its par value, we see no easy way of avoiding this difficulty. If a document says one hundred dollars has been paid, one hundred dollars ought to be paid. The most that can properly be done is to allow companies which cannot sell such stock at par to arrange for the "amortization," or gradual cancellation, of any necessary discount by appropriating, out of future income or surplus which may accrue subsequent to the issue of such stock an annual sum having precedence over dividend payment, to be so applied on capital account as to make the deficiency good in a period of no very great length. If proper provision is made for thus cancelling or amortizing this deficiency, such stock may properly be made, by general law, non-assessable. The reluctance of directors to

impair their ability to pay dividends for a term of years will prevent the abuse of this power. We believe the issue of stock at a discount, under safeguards like these, to be far preferable, in the interest of the public, to the sale of bonds at a high rate of interest, or what amounts to the same thing, at a large discount.

20. SHARES WITHOUT PAR VALUE.

We do not believe that the retention of the hundred dollar mark, or any other dollar mark, upon the face of the share of stock, is of essential importance. We are ready to recommend that the law should encourage the creation of companies whose shares have no par value, and permit existing companies to change their stock into shares without par value whenever their convenience requires it. After such conversion any new shares could be sold at such price as was deemed desirable by the board of directors, with the requirement of publicity as to the proceeds of the sale of such shares and as to the disposition thereof; giving to the old shareholders, except in some cases of reorganization or consolidation, prior rights to subscribe pro rata, if they so desired, in proportion to the amount of their holdings.

As between the two alternatives of permitting the issue of stock below par, or authorizing the creation of shares without par value, the latter seems to this Commission the preferable one. It is true that it will be less easy to introduce than the other, because it is less in accord with existing business habits and usages; but it has the cardinal merit of accuracy. It makes no claims that the share thus issued is anything more than a participation certificate.

The objections to the creation of shares without par value are two in number: First, that their issue will permit inflation, by making it easy to create an excessive number of shares; and second, that it will produce a division of roads into two classes, those whose shares have a par value and those whose shares have not. The second of these objections does not appear to be a very serious one. There are listed on the stock exchanges today, side by side with one another, shares of the par value of one hundred dollars, shares of the par value of fifty dollars, shares with very much smaller par value, and a few, like the Great Northern Ore Certificates, with no par value at all. The share sells in each case simply for what the public supposes it to be worth as a share. The danger of inflation deserves more serious consideration. We believe, however, that it is more apparent than real, because shareholders will

be jealous of permitting other shareholders to acquire shares in the association except at full market value, and will not permit the issue of such shares to themselves at prices so low as seriously to impair the market or other value of their holdings. Shares either with or without par value, and whether sold at par or above par or below it, should, except in cases of consolidation and reorganization, be offered in the first instance to existing shareholders pro rata.

The issue of stock without par value offers special facilities for consolidation and reorganization.

Where two roads have consolidated whose shares have different market values, it has been the custom to equalize the difference by the issue of extra shares of the consolidated company to the owners of the higher priced stock. This practice has always tended to produce increase of capital issues, and may readily cause the new stock to be issued for a consideration less than its par value. The only alternative was to scale down some of the old stocks; and this often involved serious difficulties, both of business policy and of law. By the simple expedient of omitting the dollar mark from the new shares, the number can be adjusted to the demands of financial convenience, without danger of misrepresentation or suspicion of unfairness to anyone.

In the case of reorganizations, the advantage of shares without par value is even more obvious. It is here that the necessity and justice of getting money from stockholders is greatest. It is here that the impossibility of getting them to pay par for new shares is most conspicuous. We believe that in such cases the public interest would be subserved and the speedy rehabilitation of the roads promoted, by requiring the conversion of the common stock and encouraging the conversion of the preferred stock into shares without par value; the certificates simply indicating the proportionate or preferential claims of the holders upon assets and upon such profits as might from time to time be earned.

All of these considerations seem to apply with equal force to the securities of railroads under state incorporations, and we believe the laws of the several states could with advantage be modified so as to provide for the issuance of stock without par value.

21. NEW ISSUES OF BONDS.

It seems to be generally agreed that no limitation should be placed on the price at which bonds can be sold, but any discount

should be cancelled or amortized during the life of the bonds by the appropriation each year, out of annual income or surplus accumulated after the issue of the bonds, of not less than the proportionate amount of the discount. In the case of convertible bonds, the same provision should hold good, with the additional restriction that after conversion the laws governing the amortization of discount on stock sold below par should apply also to the unamortized discount on convertible bonds. While the convertible bonds themselves may be sold below par, the conversion price of the stock should equal its face value; except of course in case of shares without par value, where no limit as to conversion price is necessary, nor any amortization after conversion. The premium on bonds redeemed before maturity or the unamortized discount on bonds thus redeemed should be charged to profit and loss, and provision made for the gradual cancellation of this charge out of income.

Issues of convertible bonds should be offered to stockholders pro rata, in the same manner as stock itself, to the extent to which they may choose to avail themselves of the privilege of subscription.

22. DIVIDENDS AND RESERVE FUNDS.

No attempt should be made by statute to limit railroad profits to a fixed percentage, or to treat a high cash dividend as necessarily indicating extortion. Railroad charges must be reasonable; but to try to control rates by arbitrarily limiting profits is to put the manager who makes his profit by efficiency and economy on the same level as the one who tries to accomplish the same result through extortionate charges.

Scrip, bond and stock dividends should be prohibited. They are commonly justified on the theory that the company has in times past put earnings into the property which it might have divided among the stockholders, and that the scrip dividend merely reimburses the stockholders for what they have put into the road. But these sums were put in, either to make depreciation and obsolescence good, or as actual additions to the property. In the former case the capital account ought not to be increased. In the latter case any such increase gives color to the claim that the shippers have been taxed to pay for the improvement of the property, and that the stockholders have appropriated the result.

Many of the stock dividends in past years have represented an increase in the value of the property, not paid for either by investors or by shippers, but due simply to the foresight of the management in locating and organizing its business wisely. Under these circumstances a stock dividend to represent this increased value may possibly have been justified, but it is far better to let the increased value be shown by a higher rate of dividend on the existing shares of stock, instead of by an addition to their nominal amount.

If we prohibit scrip dividends, we can permit the creation of proper reserve funds without having them regarded with suspicion as being a pretext for future issues of unpaid stock. Sound finance demands that the companies should set aside such funds, out of income, to "defray the cost of progress." They can thus provide against obsolescence, or make improvements which add nothing to the earning capacity of the property and ought not therefore to be made the basis of increased capital liability.

Failure to encourage the creation of reserve funds out of surplus earnings would cause a constant increase of fixed charges, already heavy enough. Whatever gain there might be in a present lowering of rates would be merely temporary. Investors and shippers would alike be misled; the former into a fancied security as to the permanence of dividends, the latter into the belief that such reduction in rates was permanent. Ultimately such a course would lead either to higher rates or to steadily diminishing dividends and consequent impaired credit. Railroad credit is an important asset to the entire country, and it should not be wasted. In encouraging, therefore, the creation of reserve funds, we are only suggesting that the present generation shall not be unmindful of its obligations to future users of transportation.

Cash dividends are not likely to be as large as scrip dividends, because the former involve the distribution of a corresponding amount of cash, while the latter do not. Under these circumstances the prohibition of script dividends should of itself encourage the creation of proper reserve funds. In this as in other respects, all these three proposals—freedom from arbitrary restriction of profits, prohibition of script dividends, and creation of proper reserve funds—hang closely together. Any one by itself may be of doubtful value. Taken together, they should produce a result advantageous to all.

23. TREATMENT OF INTERCORPORATE HOLDINGS.

Whatever may be the evils due to such holdings, an unqualified prohibition of the ownership of stock of one road by another involves too much disturbance of existing relations to warrant us in advocating it. Much will be accomplished if we do away with the unnecessary extension of these holdings and provide for equitable dealings between the representatives of the purchasing company on the one hand and the holders of minority interests on the other.

If a railroad company is allowed to build the necessary lines into other states for the handling of interstate business, instead of being compelled to create some separate company to do this, one fruitful reason for intercorporate holdings will be done away with. If we have full requirements of publicity regarding the purchase of stock of other companies, and have the disclosure of directors' interests therein, another source of danger is avoided. If, finally, we can remove artificial obstacles to consolidation by permitting the issue of shares without par value, we shall be able to avoid the expense of double corporate organization where a single company would better serve public economy and convenience. In this and other respects, many of our difficulties are due to the attempt to rely upon competition in a business which, in private hands, should be treated in essentials as a regulated monopoly.

Any company, or group of companies, which has purchased a majority of the stock of any existing road may properly be required to buy the minority stock at the same price as that paid for the majority stock where the price has been uniform. If the price has not been uniform, the purchase should be either at the average price paid for such holdings or at a price to be fixed by appraisal, at the option of the minority stockholders.

If a company has acquired control of the common stock of another, but not of its preferred, it should be required either to buy the preferred stock or to make the preference cumulative. For the continued existence of a non-cumulative preference under such conditions will offer constant temptations to unfair dealing, if not to actual fraud.

In order to avoid vexatious opposition to consolidation by a minority it should be possible, after such an offer had been fairly made, to convey the property by three-fourths vote of the shareholders and dissolve the corporation. The purchase of less than a majority

of the stock of one line by another (except as one of a group of railroads jointly holding the stock of some connecting company) should be discountenanced and as far as possible prohibited.

What we have here said applies only to intercorporate holdings arising out of railroad affiliations permissible under existing statutes and not in conflict with declared principles of public policy.

24. REASONABLE AND UNREASONABLE EXPECTATIONS.

An agreement on these lines will enable us to avoid many existing conflicts of jurisdiction, and will incidentally promote honest and responsible management of our railroads in every department. So far as it does this, it will be a good thing both for investors and for shippers. But the extent to which a law regarding security issues, however well drawn, can protect either the investor or the shipper is quite limited.

Most of those who advocate legislation on this subject hope for wider results than can possibly be reached by any such means. One man expects that a good law on stock and bond issues will be of great service in enabling courts and commissions to protect the shippers against overcharge. A second believes that both investors and shippers can be benefited by an abolition of the profits of the promoter. A third thinks that our securities can be standardized, so that the investors will be sure of getting the returns which are promised them. A fourth demands that public confidence be so restored that the community may get the railroad capital it requires. The attainment of these results is beyond the power of an Act of Congress. The chief thing that such an Act can do is to remove obstacles which bad laws and worse practices have placed in our way.

The attempt to render direct protection to the shipper by a federal statute regarding stock and bond issues is attended by difficulties which are almost insuperable.

In the case of *Smyth vs. Ames* the Supreme Court of the United States held that the amount of bonds and stocks outstanding was but one among many matters to be considered in deciding whether rates were reasonable. This therefore is the law as determined by precedent; and it is fortunate that the dictates of precedent coincide with those of business sense. The attempt to make the face value of securities issued the determining factor in rates would result in putting a premium on roads which had been speculatively, not to say dishonestly, built, or managed, by allowing them to charge higher rates

on account of the inflated capital thus produced. And, wholly apart from any such speculation or dishonesty, the amount of stock capital and bonded debt, even if paid for at par, is a very inaccurate and incomplete criterion of the value of the property devoted by its owners to public use. It has at best only a historical importance, as showing what property was or purported to be worth at the time of the incorporation. It does not show what it is worth, or what rates may properly be charged for its use, ten years later or even one year later.

25. PROMOTERS' PROFITS AND SERVICES.

We are told that the profit of the promoter represents a wholly unnecessary burden upon the American public, and that so far as this profit can be done away with it will be good for all parties. Neither of these statements is quite true. The promoters, using the term in a broad sense, may be divided into two classes; constructors who build a road whose future is uncertain, in the expectation of selling the stock for more than it cost them; and financiers who induce the public to buy the bonds of such roads. Both of these classes, if they do their work honestly, render useful services to the public. The constructor gives our undeveloped districts the benefit of new roads, which they would not get without his intervention; and if he does his business well he builds the roads more economically than anybody else could. The financier renders an equally important service in collecting the capital of the investors to build new railroads or improve old ones. On the Continent of Europe this is done by the banks. The great banking concerns of Germany use a very considerable part of their deposits in carrying industrial enterprises during their initial stages before their merits have been demonstrated, and then disposing of them to the actual investor at a profit in order to set their capital free for the floating of new concerns. But in the United States the power of the banks to do this is limited by law and by custom; and so far as they either cannot or do not, it must be done by financial houses especially organized for the purpose.

Our American system undoubtedly involves grave possibilities of fraud. The man who is constructing a road is tempted to persuade people to loan him money on inadequate security. The financiers may be tempted to wink at this deception. Worst of all, the roads thus built may be built for sale at an inflated valuation. The promoter may obtain his profit, not from the legitimate increase of the

value of his property, but from his power to persuade the management of some larger system to buy the branch road for more than it is really worth. These are evils which publicity would do much to check. Where there is no fraud, the promoter renders a service for which he is entitled to fair remuneration.

26. STANDARDIZATION OF RAILROAD SECURITIES.

We are told that if it was possible to standardize food by a pure food law, it ought to be possible to standardize railroad securities by a securities law. It is possible—to the same extent and no more. The pure food law enables a man to know what he is buying. It does not certify that the thing he buys is good for him. That is left to his intelligence. The government cannot protect the investors against the consequences of their un wisdom in buying unprofitable bonds, any more than it can protect the consumers against the consequences of their un wisdom in eating indigestible food. Unless we are prepared to have government guarantees of interest on railroad investments—a most questionable proposal—the only way in which we can standardize railroad mortgages is the one which we use with savings bank mortgages. We can insist on double security. We can say that at least half the capital of a railroad must be subscribed by stockholders, and that not more than half may be raised by borrowing—a difficult requirement under existing conditions. Until we are prepared to pass some law of this kind the investor must depend upon his own intelligence to protect him from loss. The function of the government is to see that correct information is available.

27. RESTORATION OF PUBLIC CONFIDENCE.

There was a time when the efforts of the banking authorities in most of the states were directed toward getting the discount rates as low as possible. The bank commissioners in those days regarded themselves as the representatives of the merchants who wanted loans. They made little or no attempt to safeguard the stockholders and creditors of the bank. Those were the days of wildcat banking. The country has passed beyond that period—not solely or primarily because it obtained a national banking law, but because it administered that law with due regard to the security of the stockholders and creditors of the bank as well as its customers. We have not developed our ideas of railroad management as far as we have developed our ideas of bank management. The subject is a more complex

one. The apparent conflict of interests between the management and the customers is greater with a railroad than with a bank. As a result of this misunderstanding, the necessary development of railroad facilities is now endangered by the reluctance of investors to purchase new issues of railroad securities in the amounts required. This reluctance is likely to continue until the American public understands the essential community of interest between shipper and investor and the folly of attempting to protect the one by taking away the rewards of good management from the other.

We are told that a good law regarding national incorporation would of itself create public confidence. This is an over-statement. Such a law would remove one set of sources of distrust, but there is another set, more fundamental, which can only be removed by the exercise of intelligence on the part of the American people as a whole.

28. AMOUNT OF ADDITIONAL CAPITAL REQUIRED.

There is a widespread belief, based on imperfect examination of the evidence, that the amount of capital needed for the future development of our railroad system is small in proportion to that which has been required in the past; that the profits on such added investments of capital are reasonably well assured; and that we can therefore fix attention predominantly if not exclusively on the needs of the shipper without interfering with the necessary supply of new money from the investors.

It is quite possible that the building of additional railroad mileage will be far less rapid in the future than it has been in the past, but the capital needed for the development and the improvement of the mileage already existing is enormous, even if we built no new mileage at all. The outstanding stock and debt of the railways in the United States averages less than \$60,000 a mile of line. This figure is bound to be greatly increased in the immediate future.

As our population grows denser, we shall need more and more to approximate European standards of construction by the increased amount of double track, the abolition of grade crossings, the development of station facilities both for passengers and for freight, and many other improvements scarcely less fundamental. While our railroads are perhaps even better equipped than those of Europe for the economical handling of large masses of long distance freight, they are far from being adequately provided with appliances to

secure the convenience of the public or the safety of passengers and employees. The cost of all these things is very great. The average capitalization per mile of railroads in Germany is \$109,000, in France \$137,000, in Belgium \$177,000, in Great Britain \$265,000; and, contrary to the commonly received opinion, much of this excess of cost as compared with American roads, is due to other causes than the price of real estate—an item in which our companies have had a great advantage. The cost of European roads has been largely due to improvements which we have not yet made and many of which we must make in the future as population grows denser. The thousands of millions of dollars needed for these purposes must be raised by the sale of securities.

29. PRESENT RETURN AND FUTURE SECURITY.

Neither the rate of return actually received on the par value of American railroad bonds and stocks today, nor the security which can be offered for additional railroad investments in the future, will make it easy to raise the needed amount of capital.

The ratio of interest and dividends to outstanding bonds and stocks of American railroads is not quite four and a half per cent in each case. The average ratio of dividends to the capital of national banks is between ten and eleven per cent. If it be objected that the value of the stocks of our railroads is in considerable measure due to the growth of the community rather than to the cash originally invested, and that the bonds and stocks of railroads should therefore be compared with the combined capital and surplus of the national banks, we find that these banks have for the last three years maintained an average ratio of dividends to capital and surplus combined of over six and a half per cent. If we look not at the sums divided, but at the sums earned, we find the same difference of profit in favor of the banks.

Nor can the security which most of our railroads offer be regarded as exceptional. The underlying bonds of the older systems are doubtless secure. It is not probable that even a grave commercial crisis will affect the return of a trunk line first mortgage. But very little of the new capital can be raised on securities of this kind. Most of it must come either from bonds which will not be a first lien for many years, or from new issues of capital stock. The investors in these securities, and especially in stocks, take risks which cannot be accurately forecast. Apart from probable fluctuations in traffic

and possible increase in cost of operation, new inventions may at any time render much of their present plant antiquated. The substitution of electricity for steam is but a type of the many changes which railroads may be compelled to make, any one of which might involve large additions to their cost without the assurance of corresponding additions to their return.

30. WHAT CONSTITUTES A REASONABLE RETURN.

We hear much about a reasonable return on capital. A reasonable return is one which under honest accounting and responsible management will attract the amount of investors' money needed for the development of our railroad facilities. More than this is an unnecessary public burden. Less than this means a check to railroad construction and to the development of traffic. Where the investment is secure, a reasonable return is a rate which approximates the rate of interest which prevails in other lines of industry. Where the future is uncertain the investor demands, and is justified in demanding, a chance of added profit to compensate for his risk. We can not secure the immense amount of capital needed unless we make profits and risks commensurate. If rates are going to be reduced whenever dividends exceed current rates of interest, investors will seek other fields where the hazard is less or the opportunity greater. In no event can we expect railroads to be developed merely to pay their owners such a return as they could have obtained by the purchase of investment securities which do not involve the hazards of construction or the risks of operation.

31. POINTS TO BE EMPHASIZED.

In concluding its report your Commission desires to emphasize the following points:

1st. The questions presented for its consideration do not include or involve a comparison of the policy of governmental ownership of railroads, with the policy of private ownership in any of its forms. The Act of Congress under which the Commission was appointed provides that its duty shall be "to investigate questions pertaining to the issuance of stocks and bonds by railroad corporations, subject to the provisions of the Act to regulate commerce, and the power of Congress to regulate or affect the same." The Commission has, therefore, concerned itself exclusively with questions which arise under a system of governmental regulation of privately owned railroads.

2nd. It has not seemed to the Commission profitable to consider at length what the government might have done in times past, nor to enter upon a historical recital of incidents arising out of the unregulated issue of securities. Railroad development has gone so far and such a vast volume of securities has already been issued, that the only questions of real importance today are whether, under the conditions which now exist, it is desirable for the federal government to regulate the issue of future securities, and if so, to what extent and in what manner. In other words, the large volume and complex relationships of the outstanding securities, the issue of which has not been regulated at all by the federal government and has not been effectively regulated by the state governments, make it impossible to treat the question of present or future regulation as it might have been treated if these securities were not already in existence.

3rd. It would have been equally unprofitable for the Commission to enter upon an elaborate discussion of the power of Congress to regulate or affect railroad securities, at a time when important cases are pending which will go far to determine the scope and extent of federal authority in this and other closely related subjects. Such a discussion could only state the opinion of the members of the Commission regarding the constitutional power of Congress. The issues themselves will remain undecided until the Supreme Court decides them. Whatever may be the ultimate outcome, the present fact which faces us is that constitutional questions of far-reaching consequence are today unsettled and must remain so for a considerable time. Under these circumstances, any attempt by Congress to adopt the policy of Federal regulation to the exclusion of state regulation, would be premature. On the other hand, to superimpose Federal regulation upon state regulation would add to conflicts and complexities which, in the public interest, should be diminished rather than increased. Your Commission believes that for the present an earnest effort should be made on the part of state authorities to harmonize existing requirements, both of law and procedure, and that for the future careful consideration should be given by Congress to the preparation of a permissive federal incorporation act for railroads engaged in interstate commerce.

4th. Many, if not most, of the abuses connected with railroad securities arise out of an almost universal failure to recognize the distinctions which exist and should exist between bonds and stocks.

A bond is an obligation to pay a fixed sum of money at a stated time. A stock certificate is merely the evidence of ownership of a share in the property, profits, and risks of a corporation. Most of the evils of which investors and the public complain have grown out of the attempt to give to stock a face value in terms of money. Even if the state laws prohibiting the issue of stocks for less than par were literally enforced all that the recitals on the face of a fully paid share of stock as to its par or money value would signify is that at the time of the issuance of the share there had been paid into the corporation an amount of money (or other valuable consideration) equal to the par value of the share. They do not even purport to indicate that at any time after the original issue of the stock the corporation was possessed either of the money or the money's worth. The real value of the stock certificate depends upon the manner in which the money has been invested. The Commission is, therefore, of the opinion that it is far more important to ascertain just what are the facts connected with the issue of securities and what is actually done with whatever money has in fact been realized from the stock which is issued, than merely to make sure that the par value of the stock was paid in at the time of issue.

5th. If we were compelled to assume that rates are to be materially influenced either in their making by the railroads or in their regulation by the Government by the amount and face value of the stocks and bonds outstanding, it seems to your Commission impossible to escape the conclusion that these securities should be issued only under Governmental regulation. Your Commission, however, believes that the amount and face value of outstanding securities has only an indirect effect upon the actual making of rates and that it should have little if any weight in their regulation.

In so far as the value of the property is an element in rate regulation the outstanding securities are of so little evidentiary weight that it would probably be of distinct advantage if courts and commissions would disregard them entirely, except as a part of the financial history of the property, and would insist upon direct evidence of the actual money invested and of the present value of the properties. For this and other reasons discussed in the body of the report, your Commission recommends that the Interstate Commerce Commission should have authority and adequate funds to make a valuation of the physical property of railroads wherever the question of the present value of these roads is, in the judgment of that

Commission, of sufficient importance. It is hardly necessary to add that your Commission does not believe that the cost of reproduction of the physical properties, however carefully computed, is the sole element to be considered in determining the present value of a railroad, or that the outstanding securities could or should be made to conform to any such arbitrary standard.

If railroad securities were to be issued only after express authorization of each particular issue by the Interstate Commerce Commission or other governmental agency, it is difficult to see how the Government can thereafter escape the moral, if not the legal, obligation to recognize these securities in the regulation of railroad rates. In view of the vast extent of the railroad systems of this country and the magnitude of the financial interests involved, both on the part of the railroads and of those who pay the rates, your Commission believes that the possible consequences of such a system of regulation are too serious to warrant its adoption at the present time.

6th. Upon the whole, your Commission believes that accurate knowledge of the facts concerning the issue of securities and the expenditure of their proceeds is the matter of most importance. It is the one thing on which the federal government can effectively insist today; it is the fundamental thing which must serve as a basis for whatever additional regulation may be desirable in the future.

Respectfully submitted.

ARTHUR T. HADLEY, *Chairman.*

FREDERICK N. JUDSON.

FREDERICK STRAUSS.

WALTER L. FISHER.

BALTHASAR H. MEYER.

PHYSICAL VALUATION OF THE NEW YORK, NEW HAVEN & HARTFORD RAIL- ROAD COMPANY

REPORT OF GEORGE F. SWAIN, LL. D., M. Am. Soc. C. E.

(Note:—Under Chapter 652, Acts of 1910, of the General Court of Massachusetts, the Board of Railroad Commissioners, Tax Commissioner and the Bank Commissioner of that state were made a Commission "for the purpose of ascertaining whether and to what extent the aggregate corporate assets of said corporation (the N. Y., N. H. & H. R. R. Co.) are sufficient to secure its outstanding capital stock and indebtedness." "After a careful survey of the field," the Commission selected Prof. Geo. F. Swain, who for many years has been the consulting engineer of the Massachusetts Railroad Commission and head of the department of civil engineering of the Massachusetts Institute of Technology, as engineer in charge and placed the physical valuation of the properties in his hands. The investigation and appraisal of the corporation's investments was intrusted to the well-known firm of Stone & Webster of Boston, with instructions to report to Professor Swain. Their investigation was peculiar in that for the first time it involved "an examination of properties and ascertainment of value of assets, both within and without the jurisdiction of a single state. Upon the strength of Professor Swain's report, the Commission certified to the general Court "that the aggregate assets of said corporation were sufficient as of June 15, 1910, to secure its said outstanding capital stock and indebtedness to the amounts stated, namely: Capital stock, \$104,435,000; indebtedness, \$289,711,863. Total, \$394,146,863.)

THE PHYSICAL VALUATION.

GENERAL PRINCIPLES.

The physical valuation of a property may be undertaken for any one of a number of different purposes, or for a combination of several of them. For example, it may be undertaken—

1. To serve as a basis for taxation.
2. To serve as a basis for justifying existing capital.
3. To serve as a basis for the issue of securities.
4. To serve as a basis for fixing rates for service.
5. To serve as a basis for an estimate of the wealth of the nation.
6. To serve as a basis for a sale of the property.

The principle upon which such a valuation should be made will differ according to which of the above purposes is in view. It should be remarked, however, that a physical valuation alone, by any method, is not a proper scientific basis for some of the above purposes, or, perhaps, for any of them. In the case of *Smyth v. Ames*, the Supreme Court of the United States indicated that the physical valuation was only one of a number of elements to be taken account of in determining reasonable rates, and the same would hold true, in greater or less degree, for valuations for the other purposes named.

That such is the case, and that different methods of valuation should be used, according to the object in view, are points which it may be well to discuss briefly.

1. Whether the physical valuation is a proper basis for taxation will depend upon the tax laws. In some States the tax may be based to some extent, and possibly entirely, upon the physical value, exempting securities, franchises and value as a "going" concern, while in other States the tax may be based entirely upon earnings, or upon the value of the securities, perhaps with little or no reference to the physical property. If the physical valuation is made for taxation purposes, however, the present value of the property, taking account of depreciation, and probably with the addition of some amount to represent intangible values, would probably be considered a reasonable basis for such valuation, as far as it goes. Two properties, identical in all respects, one of which is capable, on account of its favorable location, of earning a large return, while the other, on account of its unfavorable location, is operated at a loss, would not, and should not fairly, be taxed equally. Taxation, it will probably be admitted, should recognize earning power as well as physical value.

2. Physical valuation does not, in general, appear to be a fully adequate basis for justifying existing capital, for such capital generally depends upon the historical development of the property, and some or much of it may represent property which has been abandoned, or machinery which has been made useless, by necessary relocations, or by improvements in mechanical appliances. A railroad company may, for instance, be built today and operated by steam locomotives, and the capital may represent the exact sums spent for the property; but in the course of ten or twenty years it may become advisable to substitute electricity as a motive power, or the company may be forced to do so by legislation, rendering large expenditures necessary, and the abandonment of its steam locomotives. Or the law may require electrification only in a metropolitan district, requiring large expenditure, but not allowing of any material reduction in the service by steam locomotives, because the steam runs would be the same as before, with a few miles cut off at the end. It would be reasonable that the additional expenditure in such cases should be capitalized (temporarily, at least, subject to retirement out of earnings), yet the physical value of the resulting property might be no greater than before, or even

less than the final capital. In the development of a railroad many experiments may have to be made and lines built which seem wise at the time, and which require the expenditure of capital; yet this additional capital, though proper and reasonable, may in the end prove to be wasted, as the arts progress and the system develops.

Further, improvements made after a railway is in operation, such as additional tracks, the elimination of grade crossings, etc., may be very much more expensive to effect than they would have been if made at the beginning, so that the final physical value, if measured simply by the cost of reproduction, may be much less than the capital properly expended upon them.

On the other hand, property such as real estate may be acquired by the company at a low price, and may greatly appreciate in value as population grows, so that in the end its physical value may far exceed the capital expended for its acquisition.

How far these and other conflicting elements may counterbalance is entirely uncertain, depending upon the circumstances of each case, but it seems clear that the physical valuation at any given time is not a proper scientific measure of the justifiable capital, which may be more or less.

It is safe to say, however, that if the existing capital and debts of a corporation are found to be less than the present physical valuation of the actual property, for the purposes for which it is used, together with cash and other assets, allowing for the appreciation of land, and disregarding all abandoned property, the concern would be solvent in case of liquidation, provided it is also able to earn a fair return,—that is to say, if its securities are in demand at good prices. A railroad traversing a desert, with no traffic upon it, might have physical assets in excess of the capital, and yet, having no business, might be insolvent.

3. Neither is a physical valuation a fair criterion for justifying or not justifying the further issue of securities. If actual improvements are needed upon a railway property in order to enable it to render proper service, or in order to effect operating economies, it would seem that new capital to meet those requirements should be authorized, independent of the existing capital. It is reasonable to assume that past over-capitalization in excess of physical value should not prevent a proper development of facilities, or the realization of operating economies, if these in themselves justify the increased capital. Whether rates should be high enough to pay

dividends upon such excessive total capital is, of course, another question.

4. If the physical valuation is to be used for the purpose of aiding in fixing rates for service, earning power is not to be considered. Rates and earning power are interdependent, and one cannot be considered an element in fixing the other. But there are a number of reasons why a physical valuation does not seem a reasonable basis for determining rates. As has been shown, the existing capital, even if it only represented actual and legitimate expenditure, may be more than is represented by the physical valuation, and if the rates are not in themselves excessive, a reasonable return should generally be allowed upon the total capital, and enough to compensate for the risk involved in the undertaking. Also, the value of the franchise itself may be large; it is in some cases subject to taxation, and upon it a return should be expected, though it is, of course, outside of any physical valuation.

In the development of a railroad system, it not infrequently happens that a portion of the original line is abandoned. The interests of the public justify the reconstruction of a certain portion of the old line, reducing the grades, and perhaps serving new localities, and in the end the old line is abandoned. This old line, however, is represented by capital which has been issued, and upon which a return has been paid since the beginning. It would not seem reasonable to require the reduction of rates on account of the abandonment of the old line. The capital representing this line is still entitled to a return, and if it is held that this capital should be retired out of earnings, the rates should rather be increased, for a time at least, in order to effect this result. Whichever ground is taken, that is to say, whether it is held that the capital representing the abandoned line is no longer entitled to a return, or that this capital should be retired out of earnings, the carrying out of improvements will be discouraged, for the increase of rates to retire capital out of earnings will probably be difficult to effect, and the actual result may be a reduction of dividends.

Further, in mercantile business a normal price may, perhaps, fairly be considered to be that which could be charged by a new concern starting in business without the advantages of location of the established concern, and without the disadvantages of old machinery and methods, or capital representing discarded property. If this basis is applied to the rate question on railroads, it might and

probably would be the case that the existing line had found the best location, and that any new line would have to adopt a location not so favorable, requiring increased amounts of earthwork and generally increased cost of construction. On this basis, therefore, the estimate should not be of the physical value of the existing property based on the cost of reproducing it, but an estimate of the cost of building a new line in a location probably less favorable.

Suppose, for instance, that two railroad lines connect the same terminals, but that the line first constructed has taken advantage of the only economical location, so that the second line has been obliged to spend a great deal more for construction, making its physical valuation greater than that of the first line. If rates were made to depend upon physical valuation alone, the first and less expensive line would be required to charge lower rates than the newer and more expensive line, so that the former would probably attract all the business and the latter would be ruined. As a matter of fact, the two lines would probably charge the same rates for the same service between terminals, so that the less expensive line would gain the advantage accruing from its more favorable location and lower cost.

A further illustration, showing the different principles which should govern a physical valuation made to justify capitalization, and a physical valuation made as a basis for rate-making, is afforded by the treatment of leased property. Suppose that a railroad company leases its terminal lands and buildings. If a physical valuation is made of the property, for the purpose of justifying capitalization, it must be recognized that this lease represents no capital. Its value, therefore, is simply the present value of the lease, taking account of the rental paid and the length of term. This value may be stated to be such a sum of money as, if put at interest at rates which the company has to pay for money, and used as a fund which is credited with interest, and charged with the rentals for the property, would be just extinguished at the termination of the lease. The value of a short-term leasehold would therefore be small. If, however, the physical valuation is to be used in fixing rates, it would have to be recognized that the company must have these terminals, or terminals of equal capacity and value, so that at the expiration of the lease it must be renewed, or the company must issue new capital and buy the property, or equivalent property. Rates, therefore, must be fixed so as to enable it to earn an income

sufficient to include this rental, or a fair return on a new capital issued for buying the property. In other words, the value of the lease for purposes of rate-making is the same as the value of the property itself, or its rental capitalized at current rates; while for the purpose of justifying existing capitalization, the value of the lease, if the term is about to expire, may be little or nothing.

5. The physical valuation is not a scientific basis for an estimate of the public wealth, because that wealth depends upon the value of the property as a "going" concern, and this depends upon its earning capacity, not its physical valuation. For this reason the United States census reports estimate the value of railroad property by capitalizing the net earnings.

DEPRECIATION.

6. The treatment of depreciation, and of abandoned property in particular, should reasonably differ according to the purpose of the appraisal. As above stated, if the object is to fix the tax rate, or to serve as a basis for the sale of property, the depreciated value should be taken, while abandoned property should not be included. A study of depreciation is especially important when a piece of property is to be purchased, for the careful investigation might show that the depreciation had been excessive, that the property had not been properly maintained, and that large sums would be immediately needed to rehabilitate it. In such case the price to be paid should, of course, be correspondingly lower than if the property were in good condition. In other words, depreciation is an important factor in estimating the market value of a property, or of the securities which represent it. In this case, also, the value as a "going" concern is of great importance, that is, good will and franchise values must be given great weight, as well as physical valuation.

If the object is to justify existing capital, or to serve as a basis for the issue of new securities, or to fix rates of service, it seems reasonably clear, however, that depreciation should not be allowed for. Rates should be large enough to cover operating expenses, a proper charge for depreciation and a fair return on the capital invested. The depreciation charge is, of course, based upon the cost of the property new. Suppose, however, that a new concern is organized, the capital fixed and the rates adjusted under public supervision; but that after five or ten years of operation it is

found that although the charge for depreciation had been fixed as accurately as it was possible to foresee, and the rates adjusted in accordance therewith, this depreciation charge was not large enough, so that the property had not been properly maintained and had much depreciated in value. The rates should have been higher. If, now, the rates are directly dependent upon depreciated value, the greater the depreciation the less the rate, and after depreciation has taken place the rates would be less, whereas it is clear that the reverse should be the case. It would make a great difference whether the depreciation had been due to excessive dividends or too low rates in the first instance. In any case, the charge for depreciation should be based on the cost of reproduction new.

With reference to justifying existing capital or new securities, the arguments which may be adduced in favor of estimating only the depreciated value may, perhaps, be fairly stated as follows:—

First.—It may be said that if the physical valuation of the property is to be made, such physical valuation must take account of the fact that the property is not new, but that many of its parts have depreciated more or less. Rails are partly worn out, ranging all the way from new ones to those just ready to be taken out of the track. Ties, buildings, rolling stock and other parts of the physical property are likewise depreciated. If the railroad were built new it would be worth more than the railroad in its present condition. The object is to find its value now, and this is the proper basis for capital.

In answer to this argument the following may be said: It is true that certain parts of the physical property are not as good as new. Other parts, however, are better than new, such as cuts and fills, which have been seasoned by use, at much larger expense than would have been necessary to simply move the present yardage originally. This seasoning may or may not be included in the physical valuation. If it is not, the entire property at the present moment may be, in fact, notwithstanding the depreciation of certain parts, as good as new, or even better than new.

The physical valuation, however, sometimes, and properly, includes an item for seasoning, although this item is very uncertain and difficult to estimate. This seasoning is not an appreciation in value, like the appreciation of real estate but it represents money actually paid out annually for a number of years, and charged to operation. If this seasoning is allowed for in the valuation, it may

be urged that in this case the depreciation of the other elements should certainly be allowed for. But, even in this case, it is not at all certain that the existing track in its depreciated condition is not as good as a new track would be. The existing track is fitted for high-speed traffic, and has become so fitted by a process of adjustment from year to year, involving an annual expense for maintenance, which is not included in the element of seasoning. A new track would not at once be fitted for carrying trains at 60 or 70 miles an hour, unless in the estimate an allowance had been made for bringing it to this condition. The usual cost for materials and for track laying would not produce as perfect a track as the existing depreciated track of a first-class railroad.

Briefly, then, in favor of a 100 per cent. valuation, it may be urged that, even allowing for seasoning of roadbed, but using the ordinary figures for materials and track laying, the estimate of cost of reproduction new does not represent a track any better than the existing depreciated track.

With reference to buildings and rolling stock, the above arguments for a 100 per cent. valuation would not apply.

Second.—It is urged in favor of using depreciated values that certain elements of the physical property, notably real estate, have appreciated in value without any expenditure, and that if this appreciated value is allowed in the valuation, the depreciation of the elements subject to depreciation should equally be allowed for. To allow the appreciation of elements which have appreciated without outlay, and not to allow depreciation of elements which have depreciated, would give an excessive valuation.

In answer to this the following may be urged in favor of a 100 per cent. valuation: as for the appreciation of real estate it may be urged that the company in many States, is taxed on the appreciated value, and that therefore such appreciated value should be used in a physical valuation made for the purpose of fixing capital or rates. Moreover, in connection with this matter it may be said that it would not be fair to prevent the company from gaining a benefit from the appreciation of property largely brought about by the very facilities which the company furnishes. If an individual

or a corporation buys a piece of property, the investment is not the price of it, but is the property itself. If the property appreciates in value, the concern should legitimately expect and be allowed to earn a proper income upon its appreciated value. If it is not able

or allowed to do this, it would naturally sell the property for its increased value, and put the money into something which would bring the proper return upon that value. If a railroad company bought its terminals many years ago at a low price, and if it is only to be allowed to earn a low return on the actual money invested, it might reasonably take the ground that it would sell those terminals for their increased value, and invest the proceeds in land elsewhere, upon the cost of which it would expect to be allowed to earn such a return.

If an individual or a concern buys a piece of property and pays the taxes upon it, it may claim to be reasonably entitled to any appreciation of value which takes place. This is the case with property left entirely unimproved, in which the appreciation of value is due entirely to the growth of the community. If allowed in such a case, how much more justifiable is it if the property has been utilized, and how much more still if the growth of the community is itself largely due to that use, as in the case of railroads, which afford facilities that are the main cause of the growth of communities.

A similar illustration (given by Mr. J. C. Lawrence, member of the Railway Commission of Washington)¹ will show very clearly that a railroad must be allowed the benefit of an appreciation in value of lands and other similar elements which increase in value with time. Suppose an established line has terminals which were acquired years ago at a very low cost. A new line is built between the same terminal points, but, in order to acquire terminal lands of value equal to that of the established road, it has to pay perhaps ten times as much. If the newer road were not allowed the value actually paid for these terminals, it would be deprived of a return of a sum actually and necessarily invested in acquiring its property, and in that way it would be, in fact, deprived of the property itself. If the newer road were allowed to earn a return on the amount paid for its terminals, while the older road were not allowed to earn on the appreciated value of its terminals, the rates on the latter would have to be fixed lower than on the newer road, and the traffic would all go to the older one, so that the construction of new roads would be effectively discouraged.

If the valuation is to justify existing capital, real estate acquired years ago at low prices is not represented by capital expended equal to its increased value. But if the above arguments are sound, and

¹Railway Age Gazette, Feb. 8, 1910, page 359.

the company is to be allowed the benefit of increased value which it itself has largely created, as a partial or perhaps entire compensation for the risk of the initial undertaking, it might fairly claim the right to issue new securities to its stockholders, on the basis of such increased value, to cover expenditure due to obsolescence. Suppose, for instance, a railroad company builds a bridge suitable for its traffic. It maintains it in good condition, and the depreciation is practically nothing. In the course of years, however, it becomes necessary to increase the weight of rolling stock, and the bridge is too light to carry such increased weight. Its construction is such that it cannot be strengthened, and the only thing to do is to replace it entirely by a new and heavier structure. The bridge is perfectly good for its original purpose; it has been kept painted, and necessary repairs have been promptly made; it is practically as good as new for the purpose for which it was originally constructed. Nevertheless it is necessary to renew it entirely. According to the rules of the Interstate Commerce Commission, quoted below, the cost of renewing it in kind, that is to say, the cost of building a new bridge exactly like the old one, must be charged entirely to operating expenses, and only the additional cost of building a heavier bridge can be capitalized. But there is no need of renewing the building in kind, since it is perfectly good for its original purpose. In such a case as this, it may be urged with fairness, it would seem that the entire cost of renewal, if offset by increased value of other property, such as land, might be charged to capital. In other words, it may be fairly claimed that the company should be given the benefit in capitalization of the value left in the original property for the purpose for which it was originally intended. If the bridge had not deteriorated, this remaining value would be its original value. If the bridge had deteriorated, it would be less.

This principle, where applicable, might be formulated by saying that a depreciation fund, real or imaginary, should be created for the bridge, and added to from year to year, according to one of the established methods, in such a way that it would be sufficient to renew the structure in kind at the date when it would be worn out through use for the purpose for which it was designed; and that if replaced before this date, because advances in the art then make it unsuitable for the new purposes for which it is desired to use it, the charge to capital should be the cost of rebuilding it less the amount then in the depreciation fund.

Most companies not recently organized have in the course of their development acquired property of one kind or another which has become obsolete, not by wearing out, but through advances in the art, but which has nevertheless been paid for, and is represented by capital. This capital would not be represented in any physical valuation. It seems clear, therefore, that if other portions of the investment, such as land, have appreciated in value, the benefit of this appreciation should be allowed as an offset to property which has been abandoned or become obsolete.

The main argument in favor of using an undepreciated valuation, however, has not yet been given, and will now be discussed. When a railroad is once built it is, or should be, thereafter kept as good as new for purposes of operation, and the cost of doing this should be charged to operating expenses. This brings up the subject of the method of charging for renewals, already briefly suggested.

With reference to capitalizing renewals, three methods may be followed:—

(1) There may be charged to capital the excess of the cost of renewal over the actual depreciated value of the old structure.

(2) There may be charged to capital the excess of the cost of renewal over the original cost of the old structure.

(3) There may be charged to capital the excess of the cost of renewal over the cost of renewing the structure as it was when new.

The first method, unless, as above suggested, the cost of renewing in kind is offset by appreciated values of other elements, such as land, and the renewal is rendered necessary, in part, at least by advances in the art, seems an improper method. It would mean that even if cost of labor and materials should remain absolutely stationary, the company would not make renewals in kind (*i.e.*, renewing structures and machines when needed, exactly as they were when new) without a continual increase of capital not represented by physical value. Under this method there might be no ultimate limit to the capital, with no greater value of the property.

It is not necessary here to pursue further the question as to how far an appreciation in land should justify capitalization of renewals in kind, in case there has been no advance in the art which renders such renewals necessary before the element renewed

is worn out for its original purpose. There is certainly something to be said, however, in favor of this position.

If, however, this first method is used, the valuation for fixing capitalization should, of course, allow for full depreciation, because it would not be fair to allow unearned appreciation of some elements and not allow for depreciation of other elements, if those elements which depreciate are to be renewed in kind partly by issue of new capital.

The second and third methods of capitalizing renewals would give identical results if costs of labor and material are the same as the original costs. Under this assumption, if old ties were replaced by new ones, the cost of the new ones, if the same as the cost of the old ones for ties of the same size and quality as the old ones, would not be capitalized. The same would be true of rails, buildings, rolling stock, etc., so that the property would be simply kept up in its original condition with no increase of capital. The cost of renewals, charged to operating expense, would be the cost of the new structures or machine, including the cost of labor in making the change, less the value of the old one as scrap. If, however, an element is renewed with an increased capacity, the excess cost would be capitalized, this excess being the difference between the actual cost of replacing the old and the cost of replacing it by new of the same capacity, or the original cost, which would be the same thing.

If, however, as is in fact generally the case, the cost of labor and materials has changed, then the second and third methods give different results. If labor and materials should have appreciated, the second method would require an increase of capital whenever a structure were renewed, just as it was originally; in other words, to maintain the property as it was originally would involve an increase or decrease of capital according as costs had increased or decreased, and capital would correspond with changes in cost of reproduction. Betterments, of course, would be charged to capital, and thereafter the capital expended therefor would follow the same law.

If costs of labor and materials change, the third method would only allow an increase of capital if the property were made better than its original condition. The capital, therefore, would not follow the changes in actual value of the property due to change in costs, as it would in the second case. If the cost of a station should double, and it required renewal on the the old, there being no

salvage, the capital representing that station would be but half its actual value.

To state it otherwise, in the third case, the property would be renewed as good as now, entirely out of earnings, *only betterments* over the original condition being capitalized. In the second case, the property would be renewed *to cost as much as when new*, entirely out of earnings, *only increased costs* being capitalized. In the first place, to maintain the property as good as new, earnings alone must be sufficient, as no additional capital can be issued for the purpose.

According to the rules prescribed by the Interstate Commerce Commission, the third method of capitalizing renewals is to be followed, as will be evident from the following quotations:—

4. *Property retired and replaced.*—When property other than land or equipment, a betterment of which would be chargeable to the accounts of this classification, is abandoned, demolished or otherwise retired from service for the purpose of or by reason of its replacement by property of like purpose of a better kind, or higher type, the cost of replacing in kind the property so abandoned or withdrawn from service, less the salvage, if any, should be charged to operating expenses. If, however, a reserve for abandonment, as provided in paragraph 8 of these instructions, or a reserve for accrued depreciation has been created with respect to such property, the reserve account should be first debited with an amount equal to the credits thereto made with respect to the property abandoned or withdrawn and replaced; but if no reserve has been created in advance of the retirement of such property, and the amount chargeable to operating expenses is relatively large, so much of the amount as may be authorized under the conditions outlined in paragraph 9 may be carried in suspense for distribution to the operating expenses of succeeding years.

A 33. *Equipment.*—To this account should be charged the cost of all newly acquired equipment, such as steam locomotives, electric locomotives, passenger-train cars, freight-train cars, work equipment (for general use), floating equipment and the necessary appurtenances, fixtures and furniture first to fit out for service, including the cost of inspection, setting up and trying out, and transportation over foreign lines; also, the cost of additional devices and apparatus applied to equipment, such as electric headlights, power brakes, vestibules, machinery of self-propulsion, heating and light-

ing apparatus, and the like; and the excess cost of improved appliances and parts or appurtenances over the cost of replacing in kind the appliances and parts or appurtenances removed.

To this account should be credited the original cost (estimated, if not known) of any equipment destroyed, sold or otherwise permanently retired from service; but if the value (the original cost) of any equipment as carried in the accounts representing the cost of equipment has been written down in consideration of depreciation accrued previously to July 1, 1907, the depreciated value at that date, instead of the original cost, should be credited to this account; proper account should be taken of any salvage, and the "reserve for accrued depreciation" account should be debited with an amount equal to the amount previously credited thereto with respect to the equipment retired. The difference between the actual depreciation (original cost or depreciated value on July 1, 1907, less salvage) and the reserve for accrued depreciation should be charged to the appropriate account in operating expenses, if the difference is due to depreciation in service since July 1, 1907; to profit and loss, if due to depreciation in service before that date, and if not readily assignable, the amount should be pro rated between operating expenses and profit and loss on the basis of the time in service after and before that date.

It is evident from these quotations that the Interstate Commerce Commission requires railroad companies to keep their property as good as new, so far as operating is concerned. Suppose, now, a railroad is new and about to be put in operation; it may be maintained in favor of estimating depreciated value that a depreciation fund should at once be established out of earnings, and that in any physical appraisal the depreciation of the property would be balanced by the amount of this fund. This argument appears sound in the case of any element which constitutes a very large proportion of the physical plant, and which must, at some time or other, be completely renewed, as, for instance, a steamer or a power plant. In the case of a railroad, however, the track, roadbed, bridges, buildings and possibly also the equipment, come under a different category. The ties do not all wear out at once, or have to be replaced at one time, and the same is true of the other elements mentioned. After being operated a number of years, the expenditure for renewals of these items comes to be a nearly constant annual charge. The amount properly to be expended out of earnings for main-

tenance and renewal of the property is about the same each year, and can be foretold with tolerable accuracy. The renewal of one engine or of one bridge is not a heavy item in a system on which there are 2,000 engines and perhaps 1,000 bridges. In other words, the charge for maintenance and renewals, instead of coming due at one time, becomes a constant distributed charge. Since this had to be met out of earnings, and since the original capital had to be sufficient to build the road new, it would seem that in justifying existing capital, or the issue of new capital, the cost or reproduction new and not depreciated should be taken, and no depreciation fund is required.

As already stated, in the case of an element which constitutes a large portion of the physical valuation, this would not be true. A depreciation fund would here seem desirable, and the depreciated value should reasonably be taken in a physical appraisal made for the purpose of justifying existing capital. By the rules of the Interstate Commerce Commission equipment is placed in a somewhat different category from roadbed and track, and here also it may be reasonable to allow for depreciation. The renewal of a locomotive is a much more important matter than the renewal of a tie or a rail.

It may be mentioned, however, that even in the case of such elements as those just referred to, that is to say, those which constitute an important fraction of the original plant, it may be argued with some force that a depreciation fund is not necessary, and that the cost of reproduction new is the proper basis in justifying capitalization, provided it is definitely required by law that renewals of these large items must be made out of earnings. For a depreciation fund must be set aside and deposited in some repository for safe keeping, to be used when occasion demands. Why, then, should it not be distributed to stockholders, they forming the repository, but being under obligation to furnish the money when the demand arises; that is to say, to replace the element in question out of earnings, even if it should require a reduction, or a suspension of dividends, or even an assessment? Such a contention seems strictly logical. The only objection to it in practice is that it would obscure the real condition of the company from the knowledge of the public, and, indeed, of all except those intimately acquainted with the details of its physical and financial condition. In the interest, therefore, not of logical consistency but of publicity, and for

the protection of investors, it is unquestionably wise to set up a depreciation fund in such cases, and to take depreciated values in the physical valuation.

If, then, the company is to keep its railroad as good as new, so far as operating is concerned, or perhaps in view of what has previously been adduced better than new, charging the cost of repairs and renewals in kind to operating expenses, it certainly ought to be allowed a capital corresponding, and to charge rates sufficient to allow of such repairs and renewals. It is the duty of the railroad company to maintain this property practically as good as new, and the State has power to compel the owners of the property to do so. Portions which are worn out must be replaced out of operating expenses, and for purposes of operation the property is always as good as new. If, therefore, the valuation is for the purpose of justifying rates or capital, 100 per cent. valuation should be taken.

From the above discussion it would appear that the physical valuation, either for purposes of justifying rates or capitalization, should fairly allow the appreciated value of real estate and any other elements which have appreciated, without a corresponding allowance for depreciation of elements which have depreciated, provided the property is maintained in good condition; and that repairs and renewals in kind must be charged to operating expenses, as is required under the power of the State and the rules of the Interstate Commerce Commission; except in the case of large items, like steamers and equipment.

Physical valuations have been undertaken in several of the western States, as follows:—

In Michigan a valuation was made in 1900, to be used as a basis for taxation. Depreciated values were here used, but intangible or non-physical values were added sufficient to almost exactly balance the depreciation. This valuation covered 7,411 miles of line, with a total single track mileage of 11,293.

In Texas the railroads have been in process of valuation for a number of years, for the purpose of regulating capitalization. According to a paper presented before the American Society of Civil Engineers by the engineer of the railroad commission, no depreciation is used; but, on the other hand, no allowance is made for seasoned roadbed, and land is valued in accordance with the current market value of adjoining properties, thus allowing for ap-

preciation, but not for the cost of acquiring land for railroad purposes at prices above its value for other purposes.

In Wisconsin, in 1903, the railroads of that State were appraised for purposes of taxation, as in Michigan.

In 1907 the railroads in the State of Minnesota were appraised for the purposes of fixing rates and capitalization.

Within a few years the railroads in the State of Washington have been appraised, under the direction of the railroad commission, as a means of judging of the reasonableness of rates. Many other elements, however, in addition to the physical appraisal, were taken into consideration.

METHOD OF MAKING THE PHYSICAL APPRAISAL.

I. ROAD AND EQUIPMENT.

The object of the physical appraisal has been to ascertain the cost of reproducing the property new at the present time, and also to apply such percentage of depreciation as would fairly represent the present depreciated value in case your Board should wish to use this figure. This work had to be completed by the middle of December, subject to checking and final revision later. There was, therefore, available for this work only a period of between two and three months from the time when the work could be fairly started. Considerable time at the beginning was necessary in selecting and arranging with experts to take charge of the various branches of the work. In the short time available it was out of the question to attempt to make an original appraisal. Fortunately, however, an original appraisal was not necessary for your purposes, inasmuch as the company had already had such appraisals made. These consisted of—

1. The appraisal made under the direction of Mr. John F. Stevens, vice-president of the company, covering all the physical property of the railroad proper, brought down to the date of March 31, 1908, for the land, and Oct. 31, 1907, for the remainder. This appraisal had been carefully reviewed by Price, Waterhouse & Co., chartered accountants, the items reclassified by districts according to the classification of the Interstate Commerce Commission, numerous adjustments made, and the whole brought down to date of June 30, 1908.

2. Complete appraisals made by Westinghouse, Church, Kerr & Co., a prominent firm of engineers, covering all the trolley properties owned by the New York, New Haven & Hartford Railroad Company as of Jan. 1, 1908. These appraisals, like those of Mr. Stevens, had been reviewed by Price, Waterhouse & Co., and brought down to date of June 30, 1908.

3. An appraisal by Mr. Stevenson Taylor, an eminent consulting and naval architect and marine engineer, on the floating equipment owned by steamship companies controlled by the New York, New Haven & Hartford Railroad Company, as well as of the floating equipment belonging to the parent company.

4. An appraisal of the equipment of the company, specifying each item, made by Mr. A. E. Mitchell, formerly superintendent of motive power of the Lehigh Valley Railroad.

An examination of these appraisals revealed the fact that they had been very carefully made, and in great detail. It would have been entirely unnecessary to attempt to duplicate them, aside from the fact that it could not have been done in the time available. It was evident that all that was necessary would be to carefully examine these appraisals, to have the various items checked, the properties looked over, the unit prices and valuations corrected if necessary, the depreciated value adjusted, and the whole brought down to date of June 30, 1910.

In making the examination of the previous appraisals, therefore, it was necessary to test them at as many points as might be deemed necessary to ascertain their correctness, to check the values obtained for the original quantities, and in general to satisfy ourselves as to what changes, if any, should be made in these appraisals, besides bringing them down to date.

This work has been done as thoroughly and carefully as the time allowed. All of the physical property of the company has been inspected, the cost of additions made between June 30, 1908, and June 30, 1910, has been ascertained from the auditor, and the presence of the property represented by such cost has been verified.

In a work of this magnitude, however, it will be of course understood that absolute accuracy is impossible, and it would be a miracle if some mistakes had not been made. I am convinced, however, that the results given in this report are substantially correct. The force of men employed has included men of experience in this work, and they have worked earnestly and faithfully. My thanks

are here tendered to them for the assistance which they have given and for the thoroughness and care with which they have done the work committed to them.

The appraisal by Mr. Stevens, which occupied a period of over a year, was based upon a complete resurvey of the railroad property. All of the lines were carefully gone over, and a complete inventory made. Profiles of the various lines were prepared, taken along the center line, showing the cuts and fills; and the location of all structures, side tracks, new buildings, etc., was noted on these profiles. Based upon these, the quantity of earth work was computed, and its cost valued on assumed unit prices. The valuation of the land was entrusted by Mr. Stevens to several real estate firms, and the work was divided up among a large number of men. Every piece of real estate belonging to the company was shown upon maps, and its value was appraised. Complete schedules were made out, giving lists of all bridges, buildings and other structures, together with weights of bridges, and description of buildings, including material, dimensions and method of construction.

These complete inventories, which are deposited in the office of the company, were, of course, available for our work. It was not attempted to resurvey the line, but our work consisted in testing, checking and summarizing the previous work, using new unit prices where it seemed desirable.

II. REAL ESTATE.

As already mentioned, the valuation of the real estate was placed in charge of Mr. J. Frank Aldrich of New York. At his disposal were the detailed sheets which accompanied Mr. Stevens' appraisal, on which was shown every piece of real estate, with its appraised value. It was manifestly impossible for Mr. Aldrich to personally reappraise these parcels, many thousands in number. Yet he states that he has been able to "inspect the greater part of them; and through correspondence and conference with real estate men, savings bank officials and others" to satisfy himself concerning the values. Mr. Aldrich went over the entire line in a special train, running at slow speed, accompanied by Mr. Sutherland, a gentleman who has been for many years in the employ of the real estate department of the railroad. Mr. Aldrich also visited the large cities and towns, and personally interviewed several of the appraisers who did the work for Mr. Stevens, obtaining from them

explanations of the principles and methods used by them in arriving at their results.

Inasmuch as the Stevens appraisal of land was made by a number of different persons, it was found that the results were irregular, and had not all been made upon the same basis. Mr. Aldrich endeavored to equalize the valuations as far as practicable. His endeavor was to arrive at the value of the real estate for railroad purposes, taking account of the fact that the prices obtained for lands purchased for railroad purposes, whether as a result of negotiations, or through values fixed by jury, are generally in excess of their value for the purposes for which they would be used if the road were not there.

With reference to this matter, there is a considerable amount of evidence on hand, which may be adduced, indicating that the prices which railroad companies are obliged to pay for land varies from slightly above its value for other purposes up to five or ten times that value, or even a larger sum. Thus, Prof. W. D. Taylor, who had charge of the Wisconsin appraisal, in a discussion of a paper before the American Society of Civil Engineers, made the following statement:—

The writer made a thorough investigation in Wisconsin to determine what this right-of-way ratio had actually been in the case of the three most important pieces of railway construction done in the State in recent years. All these lines were constructed in 1900-01. One was constructed in the southeastern part of the State, in good farming lands, in a locality already well supplied with railroad facilities. The next was in the northwest central portion of the State, where the land was owned in larger areas, and was not nearly as valuable. The third was in the east central portion of the State, and the land was very variable.

Portions of the last two lines ran through country already well supplied with railroad facilities, and portions were in new country. The disposition of the land owners toward the construction of the road was probably generally favorable in the last two cases and unfavorable in the first. Quotations are here made from the circular letters announcing the result of the investigations to the several railroads of the State.

The first investigation covered 32 miles of line.

The direction in which the road runs, northwest and southeast, necessitated cutting into the farms at inconvenient angles.

In the investigation, all transfers not *bona fide* sales, such as where the consideration was \$1, were excluded. Village right-of-way land was also excluded, and some cases where excessive rates per acre were paid for very small corners of land were excluded. * * * We have 74 *bona fide* sales along the line of road from one land owner to another during the five-year period ending June 30, 1902, which included 5,604.5 acres of farming land, at a total cost of \$304,323, giving an average price per acre along the line of road for farming lands of \$54.30. One hundred and sixteen *bona fide* sales of right-of-way to the railway included 382.57 acres, at a total cost of \$108,614.07; which gives an average price of right-of-way land through the two counties of \$283.90. Thus the road paid by ordinary purchase an average of 522 per cent. of the market value of the farming land for its right-of-way land.

The second investigation covered 35 miles of line.

Forty-one land sales, in the said five-year period, contiguous to the line of the road, included in the transfer of 10,775 acres, at a cost of \$108,927.01, making an average price per acre of \$10.11. The largest transfer in the above was 738 acres, and there were 10 of the 41 transfers which included 280 acres or more. Twenty-six transfers of right-of-way to the railroad company included 247.14 acres, at a cost of \$10,166.50, making an average price per acre of \$41.14.

Thus the ratio of the right-of-way value to the market value for the right of way actually purchased * * * was 407 per cent.

The third investigation covered 82 miles of line.

Four hundred and eighty-eight *bona fide* sales of farming land, during the five-year period, contiguous to the road, included the transfer of 39,155.7 acres, at a total cost of \$452,309.70, giving an average price per acre of \$11.55. Two hundred and thirty-nine right-of-way sales included 971.37 acres, at a total cost of \$35,493.13, giving an average price per acre for the right-of-way purchased in *bona fide* sales of \$36.54. This gives a right-of-way ratio for the whole line. * * * of 316 per cent.

It should be stated here that at a hearing before the State Board of Assessment of various representatives of the railroad companies of the State in January, 1904, it was claimed by the railroads that the results of an investigation made by them showed that the property owners of the State, knowing that the assessment of their property for taxation was made up largely from data furnished by

an examination of the records of sales, had generally fallen into the habit of recording the consideration in sales at amounts much below those actually paid. Evidence was brought forward tending to support the conclusion that the records of sales throughout the State would show a land value of not more than two-thirds of the real value. If that contention is correct, the foregoing ratios should be changed from 522, 407 and 316 per cent. to 348, 272 and 210 per cent. respectively.

Mr. Aldrich's appraisal shows an advance over the figures given by Mr. Stevens, and he states that this advance is due mainly to two things:—

First.—The abnormally low values placed on much of the right-of-way as they appear in Stevens's report; and

Second.—The material advance in values at New York and in West Chester County, and particularly to the growing value of terminal and dock properties in the large cities.

It should be mentioned here that assessed valuations were not available as a basis for this appraisal. Most of the real estate appraised was in Connecticut, and in that State assessments are not made on the real estate used exclusively for railroad purposes. In Massachusetts and New York it has been possible to consult the assessed values, but Mr. Aldrich found them so variable that they did not serve as a satisfactory basis.

Altogether, after a careful study of Mr. Aldrich's result, I feel convinced that the real estate owned by the railroad company could not be duplicated for less than the appraised values, and that very likely to do so would cost a much greater sum.

Grading.—This, with the exception of real estate and equipment, is the largest single item in the cost of the road. It was therefore subjected to a very careful examination.

It has been already stated that the Stevens appraisal was accompanied by a complete set of profiles, with field books and schedules compiled from actual surveys. All the lines owned by the New York, New Haven & Hartford were gone over in a special train by Mr. Roberts and Mr. Hubbell, accompanied by Mr. Aldrich and Mr. Sutherland, and on each division by the division engineer. With the profiles in hand, the classification of the cuts into earth, solid rock and loose rock was checked, and the general accuracy of the profiles substantiated. From the one hundred and sixteen profiles representing the entire line, forty, representing the

more difficult portions, were selected and checked. The original figures were found substantially correct, with the exception of two profiles covering each about 12 miles of road.

SUMMARY OF ORIGINAL AND REVISED QUANTITIES AND ORIGINAL AND REVISED PRICES.

ORIGINAL QUANTITIES AND PRICES.

6,030,241 yards solid rock @ \$1.20.....	\$ 7,236,289.20
1,247,436 yards solid rock @ \$1.45.....	1,808,782.20
2,107,373 yards loose rock @ \$0.65.....	1,369,792.45
36,756,400 yards earth @ \$0.25.....	9,189,100.00
16,991,810 yards borrow @ \$0.22.....	3,738,198.20
153,710,891 yards overhaul @ \$0.01.....	1,537,108.91
15,911,027 yards train-haul @ \$0.23.....	3,659,536.21
	<hr/>
	\$28,538,807.17

REVISED QUANTITIES AND PRICES.

7,246,291 yards solid rock @ \$1.15.....	\$ 8,333,234.65
1,134,117 yards solid rock @ \$1.30.....	1,474,352.10
1,476,761 yards loose rock @ \$0.65.....	959,894.65
36,311,407 yards earth @ \$0.32.....	11,619,650.24
20,779,790 yards borrow @ \$0.32.....	6,649,532.80
	<hr/>
Excess by revision.....	\$ 29,036,664.44
	\$ 497,857.27
* * * * *	*

SOLIDIFICATION.

It is quite customary in the valuation of a railroad property to include an item for so-called adaptation and solidification. This is intended to take account of the fact that after the road is opened, the embankments will settle, the slopes will slide in, the ditches become obstructed, and various other changes take place, requiring an annual expenditure for maintenance for a number of years, which should properly be charge to capital. How much this charge should be is exceedingly uncertain. In the Minnesota valuation, out of a total estimated cost of reproduction new, for road and structures, of about \$282,000,000 this item was allowed for in the engineer's report at a figure of \$11,743,000, or about 4 per cent. The total cost of grading was estimated at about \$56,000,000, so that about 20 per cent. of this was allowed for solidification. This item is certainly a real one, and should be included. The only question is as to its amount. I have taken it at the very low figure of \$500 per mile, which means that, taking interest at 6 per cent., and supposing that the annual charge continues for five years, at the

expiration of which time the roadbed has become fully seasoned and no further charge need be made, there would be an annual expenditure of about \$110 per mile for these five years. This, it will be seen, is a very low charge. The annual cost per mile during the first years of operation necessary to take care of the settlement, slips, etc., in excess of the usual cost of maintenance on a seasoned roadbed would certainly be more than this. The total figure for this item is \$805,000. Comparing with the Minnesota estimate, 4 per cent. of the total for road and structures would be about \$8,000,000, while 20 per cent. of the cost of grading would be about \$6,000,000. The figure given is certainly low.

* * * * * *

ELIMINATION OF GRADE CROSSINGS.

In the appraisal which has been made, the endeavor has been to ascertain the cost of reproduction new of the existing lines. The existing line, however, includes some elements involved in the elimination of grade crossings which has been partly paid for by the State, and by the cities and towns. In Massachusetts, for instance, 35 per cent. of the cost of eliminating grade crossings is paid for by the Commonwealth and the city or town. In this valuation, however, it has not been considered that the Commonwealth or the town has thereby acquired any perpetual or proprietary interest in the property of the railroad, but that its contribution was for the purpose of remunerating the company for the destruction of existing property involved in the change, and for the cost of protecting traffic during the alterations, as well as for the better accommodations and greater safety afforded to the public. It would have been impossible to adopt any other course, and the one described seems eminently fair. It is not contended, I presume, that where grade crossings are abolished the Commonwealth or the town becomes thereby the owner of any portion of the railroad.

* * * * * *

DEPRECIATION.

The depreciation percentages likewise have been carefully determined, and represent, in my opinion, a very conservative judgment. These percentages will, of course, vary with each different railroad, depending upon the excellence with which it has been maintained. It is the unanimous testimony of every one concerned

in this work, who has examined the line or any part of it, that the property is maintained in remarkably good condition. The depreciation percentages have been fixed accordingly.

The mistake must not be made of comparing these percentages with those used elsewhere, without discrimination. For instance, it will be noted that no depreciation has been allowed for tunnels, while in some of the western valuations a considerable depreciation has been allowed for them. The difference is probably due to the fact that in the West there are many tunnels lined with wood. On the New Haven system, however, there are no tunnels lined with wood. The case is similar with reference to other items.

Taking the cost of the road as a whole, omitting equipment and all general expenses except engineering, it will be noted that the depreciated value is about 91 per cent. of the cost of reproduction new; while taking the grand total, the depreciated value is about 86 per cent. of the cost of reproduction new. Using the grand total in the Michigan appraisal, the depreciated value was 82 per cent. of the cost of reproduction new; while in the Minnesota appraisal it was 87.6 per cent., and in the Wisconsin appraisal it was 82.5 per cent.

VALUE OF TRACKAGE RIGHTS FROM WOODLAWN TO THE GRAND CENTRAL TERMINAL.

The New York, New Haven & Hartford Railroad joins the Harlem branch of the New York Central at Woodlawn, and its trains run over the New York Central tracks from that point to the terminal at 42d Street. The New York, New Haven & Hartford Railroad Company does not own any portion of this line, but has a perpetual right to run its trains over it, and pays a percentage of all taxes assessed upon it, based on the amount of its traffic and the proportion which such traffic bears to that of the New York Central Railroad. The right to run over this line is a legitimate asset of the New York, New Haven & Hartford Railroad Company, and a very valuable one. The loss to the company which would result if it were obliged to stop its trains at Woodlawn, and the cost which would be necessary if under such circumstances it were obliged to secure a new entrance to New York City, would be enormous. Some figure, therefore, for the value of this right should be included in the physical valuation. As above stated, the actual value of this right is very large. Without attempting to go into it

very much in detail, however, it may be said that the proportion of the taxes on real estate and distribution system paid by the New York, New Haven & Hartford Railroad amounts to \$99,682.44. The details with reference to this are given in the following table:

	Assessed Valuation, 1909.	Total Tax paid.	Per Cent. paid by New Haven.	Tax paid by New Haven.
Mott Haven yard, . . .	\$ 933,000	\$ 15,636.11	41.160	\$ 6,444.05
Grand Central terminal . . .	11,488,500	192,781.59	41.656	80,305.10
Distribution system, . . .				12,933.29
	<hr/> \$12,421,500			<hr/> \$99,682.44

From these figures it appears reasonable to place the value of this property to the New Haven Railroad at least equal to the following:—

Mott Haven yard, 41.160 per cent. of \$993,000, . . . \$ 384,022.80
 Grand Central terminal, 41.656 per cent. of \$11,488,500 4,785,649.56
 Distribution:—

A tax of \$12,933.29 on same basis as Grand Central
 terminal represents a value of 770,756.00

Total value to New York, New Haven & Hartford
 Railroad Company, \$5,940,428.00

From this it is evident that the value of this right to the New York, New Haven & Hartford Railroad Company, based merely upon the taxes which it pays thereon, may be safely placed at \$6,-000,000. This figure, however, has not been added to the appraisal of road and equipment, since it represents no capital. It is rather in the nature of a very real, though intangible, asset.

FINAL REMARKS.

According to the discussion which has been given, it is the opinion of the writer that, in estimating allowable capital no depreciation should be allowed except upon marine equipment and rolling stock. That is to say, the cost of the road should be taken at the cost of reproduction new, less the depreciation for these two items. This would make the total cost of the road as inventoried \$279,871,566, not including value of trackage rights between Woodlawn and Grand Central station.

The depreciated figures, however, have been given to enable

your Board, if it deems proper, to arrive at a different conclusion. A table giving percentages of depreciation used in this and other appraisals is given below.

The appraisal which has been described in these pages has been made with as much care as the time would admit, and, in my opinion, is an exceedingly fair and reliable one. I am convinced that the figures given for the cost of reproduction new are low, and that the property could not be reproduced for any such sum. In any case, the endeavor has been made to be conservative both in the original figures, the percentages for overhead charges and the depreciation figures. I believe that you may rely upon this estimate with confidence, in forming your judgment as to whether the assets of the company are sufficient to justify its liabilities.

* * * * *

INTANGIBLE ASSETS.

No attempt has been made in the above discussion to estimate the intangible assets of the company, although these may amount to a very considerable item. In the appraisal of the railroads in Michigan in 1900, the intangible assets were estimated by Professor Adams, who gave a rule for their determination, based upon the net earnings. In a total physical valuation of \$202,716,262 for cost of reproduction new, or \$166,398,156 for depreciated value, the non-physical, or intangible, elements were estimated at \$35,814,043. The latter, therefore, just about made up for the depreciation.

Reference has been made, however, in the previous pages to one element of intangible value of a different kind, namely, that which is due to the permanent right of the New York, New Haven & Hartford Railroad to run over the New York Central tracks into the Grand Central station, which, on the basis of property taxed, was estimated to represent about \$6,000,000.

In concluding this report, mention should be made of the fact that our investigations have indicated that the Stevens appraisal was a very conservative one. Evidently no attempt was there made to unduly increase the appraised value of the property, but, on the contrary, the figures were almost always low.

Respectfully submitted,

GEO. F. SWAIN.

Note.—The final estimates as given in the appendices to Prof. Swain's report will be found in the *Railway Statistics of the United States for 1911*, on page — of this volume—the margin of assets above the above mentioned liabilities being found to be \$101,612,074.

PROSPECTS OF STATE OWNERSHIP IN ENGLAND AND IN THE UNITED STATES

By W. M. ACWORTH, London.

(From the Bulletin of the International Railway Congress.)

Two or three years ago, I was discussing railway questions with one of the most distinguished Professors of Economics in the United States, and the Professor, who has paid special attention to railway matters, said to me:—"National ownership will not be a live question in the United States for fifty years to come, unless, indeed, England should nationalize her railways. In that case, I admit that the question might at once become urgent with us." I am persuaded that my friend would not repeat his statement today. I have recently spent some time in the United States and have had considerable opportunity of learning what leaders of public opinion are saying, and still more thinking, at this moment. Having regard not only to the actual situation in the two countries, but also to the very different temperaments of the two peoples, it appears to me more than possible that the United States will lead England in adopting a policy of railway nationalization; and this not after a lapse of fifty years, but in the proximate future. I recognize that in the United States there are obstacles to nationalization that do not exist in England. The instinct against Government management and in favour of private enterprise is much stronger there than it is here now-a-days. And the instinct is based on concrete facts; for it would, I think, be generally admitted that Government agencies in America are on the whole less efficient than in England, and that a smaller proportion of the best brains of the country are enlisted in America in Government service. Moreover, in America there would be greater danger—I almost feel tempted to write "greater certainty" that, in the words of President Hadley, "politics would corrupt the railroad management, and the railroad management would corrupt politics." Further, there is in America the certainty that nationalization of railways would raise in an acute form the question, sometimes dormant but never dead, of State rights.

For all these reasons it would seem that, if railway nationalization is to come in a great Anglo-Saxon community, England and not America would surely lead the way. But there are causes, and

they may turn out to be very potent causes, working in the other direction. In England our railway system is practically complete; there is very little necessity for the expenditure of new capital. Indeed, with the increased attention that has been paid in recent years to economical operation, it has been found in some instances that accommodation has already been provided out of capital in excess of the requirements of existing traffic, and that there is a comfortable margin of accommodation available to meet the steady but comparatively slow growth of new traffic. Moreover, English conditions of business, whether it be the business of railway companies themselves or of their customers, are comparatively stable. We never see in England the tremendous increase of traffic such as the American railroads had to face in the years 1906 and 1907; nor do we see such sudden collapses as the American railroads had to face at the end of 1907, when the traffic of some companies shrank within a few months, if I remember right, by something like 25 per cent. We are not in England, as it seems to me, likely to be confronted with a sudden crisis in railway affairs. Such a crisis not only may come, but quite likely may overtake American railroads ere long. And if the outcome of that crisis were the nationalization of American railroads, I do not think anyone would be entitled to feel that the unexpected had happened. I am not attempting to prophesy. In a subject complicated by so many varying and conflicting conditions, economic, financial, personal, political, and racial, it would be absurd for anybody to prophesy. If I have an individual belief, it is that the United States will get much nearer to the brink of nationalization than they have come at present, and will then start back on the edge of the precipice, and escape by some road not yet discernible. Refraining from prophecy, I only desire to sketch the forces at present at work and to call attention to their apparent tendency.

We have been accustomed to regard America as pre-eminently the country of unrestricted private enterprise in railway matters. Speaking broadly, this was undoubtedly true till comparatively recently. It is certainly not true any longer. At the present moment American railroads are distinctly more closely controlled by government authority than are the railroads in England. So far as concerns traffic within the limits of a single State, government control has been both stringent and minute in some States for many years. For twenty years past within the great State of Texas, which is as

large as France, no railroad company has had power either to vary an old rate or to introduce a new one. The authority to make rates has been vested in the State Railroad Commission, and without the sanction of that Commission no railroad company can raise a single dollar of new capital. Texas led the way in this direction, and for a good many years Texas stood alone. But recently Texan precedents have been followed pretty widely, and it is substantially true to say today that, over a considerable portion of the Union, the individual States have taken away from the railway companies control of their own business, whether it concerns rates, services, or the raising of capital and the amount of its remuneration.

But the railway business of the United States is in the main done, not by small companies confining their operations within the limits of a single State, but by great corporations ramifying in some cases over ten or twenty States. An overwhelming proportion of the business of these companies is interstate, and, as such, escapes the jurisdiction of any individual State, and is subject only to the control of the Federal Government.

Federal control of railways is comparatively new—its history only begins in 1887—and has only become serious within the last few years, but now-a-days, it is serious enough in all conscience. American railroads have led the world in the introduction of economies, the control of operation expenses by means of scientific accounts and comparative statistics. But, unfortunately, American accounts of receipts have not always been as admirable as their accounts of expenditure. In the bad old days, gone, one cannot but believe, for ever, and gone not in consequence of Government action, but almost wholly as the result of reforms made from the inside by the companies themselves, it was not uncommon that one set of books showed what the trader ought to have paid, but did not, for the carriage of his traffic; and another set showed what he actually paid when the secret rebates were deducted. Now-a-days, the Government has intervened with the heavy hand and crude methods common where governments interfere, and laid down that every railroad company engaged in Interstate commerce shall keep the accounts prescribed by Interstate Commerce Commission, and these accounts only; that these accounts shall be at all times open to government inspection and that, if any railroad officer keep any account not expressly authorized by the Commission, he shall incontinently be sent to prison.

But this is not by any means the most serious interference of the American Government with private railroad enterprise. In the words of Mr. Prouty, one of the ablest and most experienced members of the Interstate Commerce Commission: "Its rates are a most vital thing to the railway. It is for the sole purpose of charging these rates that the railroad is built and operated. Whatever affects the amount of these charges touches in its tenderest point the welfare of the railroad corporation. From the standpoint of the railway itself, this matter is of supreme consequence." The rates of the railroads, "this most vital thing," "this matter of supreme consequence," have now-a-days passed from the control of the railroads themselves and are subjected to the authority of the Interstate Commerce Commission. In England, a railway company cannot put in force an increase of rate to which any trader objects without the sanction of the Railway Commission; but in America the Interstate Commerce Commission, either on the complaint of a trader or on its own motion, can inquire into the reasonableness of any rate actually charged, and can, if it thinks fit, substitute a new and lower rate in place of it.

Nor is this all. A few of the great trunk lines of the States, which occupied at the outset the main strategic routes, are now-a-days, especially where they have been honestly and conservatively financed all through their history, in a position of great prosperity. Public opinion and the Interstate Commerce Commission agree in questioning their right to the dividends they are at present earning. Mr. Prouty, from whom I have already quoted, has publicly stated that "only in extreme cases would a larger dividend than 7 per cent upon the capital stock be justified." And the Commission—and that they have public opinion behind them no one who knows the United States can doubt—have gone even further than this. The Pennsylvania Railroad is not only the greatest private undertaking in the world—its annual revenue exceeds £70,000,000—but its financial standing is second to none. No one has ever suggested that one single dollar of its capitalization represents anything but honest money put into the road; no one doubts that the undertaking today is worth vastly more than the price at which it stands in the company's books. For a generation past, the shareholders have been content with very moderate dividends, averaging less than 6 per cent, and have spent the balance of net revenue on capital improvements. The president of the company stated

recently before the Interstate Commerce Commission that since 1887, "his Company had put into the Pennsylvania lines east of Pittsburgh" (which are only one portion of the entire Pennsylvania system) "\$262,000,000 from earnings." That the Pennsylvania shareholders were entitled both morally and legally to put every dollar of these millions into their own pockets as dividends, is unquestionable. One might even have imagined that their self restraint, which resulted in keeping down the capital on which the customers had to supply a dividend, was deserving of encomium. That, however, is not the view of the Commission, whose decision says: "During all that time this Company has always paid to its stockholders munificent dividends. Now to whom belongs this \$262,000,000? . . . There is the gravest doubt upon this point. . . . Whatever is invested in these properties from earnings *may belong*, not to the public which has paid for it, but *to the stockholders* who have already received a full return for their investment in the way of a dividend." [The italics are mine.]

To complete the outline of the story, it should be added that state and federal interference with the actual daily operation of the railroads has already gone far and is steadily increasing. Peremptory orders to run such and such trains, to provide such and such accommodation on them, to build new stations here, to reconstruct lines there, so as to avoid crossing streets on the level, are increasing every year both in number and severity. Laws dealing with the provision of safety appliances, regulating the number of employes on a train, or the number of hours these employes are to work, have been turned out by the hundred within the last decade. In this respect also the railroads of the United States are subjected to interference more drastic and much more detailed than anything to which the English railroads are subjected. And, whereas government regulation in England dates back to the beginning of railroads, and has only been strengthened gradually and at considerable intervals, this whole mass of government regulation in the States has been piled, in the course of quite a few years, upon the backs of officials brought up under a system of almost entire freedom from exterior restraint.

Not unnaturally the American railway men, buffeted by such fierce and frequent storms coming upon them from every direction at the same time, have lost their bearings. Government control, they say, they could live with, if it were steady and uniform and

consistent. But government interference that is often self-contradictory, that never helps or guides or supports, that only objects and obstructs and forbids, in the end becomes impossible for all private initiative is paralysed. And to say that this is the position in the United States today, is only to state what is obvious and undeniable.

Twenty-five years ago President Hadley in his well-known book, *Railroad Transportation*, wrote as follows:

There is a strong popular feeling, to a large extent unsuspected by those in authority, in favour of Government ownership of railroads as a system. No one can have much to do with the more thoughtful working-men without finding how strong that feeling is, and what hopes are based upon it. The fact that the question is not now under discussion must not blind us to the fact that forces are at work which may prove all but revolutionary when the question actually does come under discussion.

Government ownership did come under discussion in 1905 when Mr. Bryan, who had twice been candidate for the Presidency and was about to be renominated by his party for the third time, startled the American public by declaring himself in its favour. At that date, as I well remember, for I was myself in America at the time, Mr. Bryan appeared to be in a minority of one. The Democrats were hardly less unanimous than the Republicans in disavowing all sympathy with his ideas. But things change fast in America, and here are one or two quotations to show what typical public men in the States are saying today, now that the question is once more under discussion.

Mr. Finley, President of the Southern Railway, with more than 10,000 miles of line, says:

I do not believe that the sentiment of the majority of the people of the United States is favorable to Government ownership, nor do I believe that Congress and our State legislatures are consciously moving in that direction, but I do believe that, if some of the more extreme legislation already enacted is supplemented along the lines now proposed, the ultimate result must be to break down the system of private ownership.

Mr. Olney, a Democrat and ex-Secretary of State says:

The situation is this. As a matter of theory, Bryan favors Government ownership of railroads upon the anticipated failure of Government regulation. As a matter of practice, Roosevelt and

his disciple, Taft, are favoring a kind and degree of Government regulation of railroads which makes Government ownership of railroads both logical and imperative.

Senator Lodge says: "The curse of Government ownership may be forced upon us." Senator Clay, that "public sentiment in favor of Government ownership is growing every day."

The situation as I see it is this. A mass of public opinion growing larger day by day is crystallizing in favor of Government ownership. Even among those who believe this to be undesirable, there are many who have become convinced that it is inevitable. And this view they hold not without good reason, for the railways of the country must be managed by some one: if the companies cannot, the Government must. And, as I have said, as the result of the tempest of drastic and even hostile legislation that has raged round them within the last few years, the railwaymen no longer know where they stand. The cost of operation has been going up against them by leaps and bounds. The wages of railway employes have not only gone up, but have gone up out of all proportion to the wages of any other comparable employment. In the deep depression of 1908 the companies attempted to reduce their expenditure by cutting down wages. The whole force of the Federal Government was instantly brought to bear upon them and they were compelled to abandon the attempt. Foiled in this direction, they tried to increase their receipts by raising rates. They were promptly confronted with an injunction moved for by the Government, and were compelled to postpone their proposed increases till legislation could be passed through Congress giving the Interstate Commerce Commission jurisdiction to decide as to their reasonableness. And now after exhaustive inquiry, the Commission has within the last few months unanimously decided that no increase shall be permitted.

To justify the proposed increase, the railway companies naturally painted in dark colors the prospects of the future. The surplus over dividends which they had been accustomed to devote to betterments and improvements had, they said, almost vanished. The dividends themselves were in danger. The security on which new and urgently needed capital must be raised was gravely imperilled. The Commission, it is true, refused to take them at their word, and declined to admit that the gloomy prognostications of the companies were justified by the facts. But it is no part of the duty of the

Commission to find capital for the companies, and there is no denying that, on the one hand, the companies are hesitating to incur new liabilities, and that, on the other, the public are less ready to purchase railway securities than they were. Securities of the great companies can, of course, be sold, and are constantly being sold; but they are only sold at a price that a few years ago would have been regarded as prohibitive. (Underscored by Editor.)

Now the need of American railways for new capital is almost limitless. The volume of traffic in the United States increases at a rate of which older countries have no idea. Roughly speaking, the volume doubles every ten or twelve years. This of itself implies vast capital expenditure. But this is not all. During the period extending roughly from 1895 to 1905, the railroads restricted their capital expenditure within the narrowest possible limits, and the arrears of these years have by no means been caught up yet. Moreover, it is not merely a question of enlarging the plant to meet a growing demand: It is also a question of raising the whole standard of accommodation to a higher plane. The railroads of a few great companies along the Atlantic coast are constructed and equipped up to a standard of perfection that is surpassed nowhere in the world; but over the larger part of the continent the railroads have still in very many cases not yet emerged from the condition of what the Australians call "pioneer lines." (a) There is, indeed, always, or almost always, a track with heavy rails, well built and well maintained. But the track, even through the streets of great towns, runs on the level down the middle of the street; the stations are often mere shanties; signals are non-existent, and all the accessories that go to make up a railroad, according to Continental and still more English ideas, are plentifully lacking. The money needed to bring up the railroads of the West to the standard set in the East is quite incalculable. But that it will have to be found, and that the American public will vent their wrath upon the railroad companies, if it is not found, seems to me certain. The results may well be that the Government will have to undertake a work that the companies find too heavy for them. And it is not probable that the Government will undertake to finance railroads which it does not own. As I have said, I do not care to prophesy. Factors that at present seem unimportant may turn out to be preponderating.

(a) Mr. Ackworth's observation can scarcely have extended to the west or across the continent—S.T.

But at this moment it looks as though before long the history of 1906-1907 would repeat itself. In these years trade was booming, and the railroads found their resources quite inadequate to cope with the rush of traffic with which they were confronted. All the signs at present point to a similar sudden outburst of activity in the near future. If it comes, and if the resources of the railroads are overpowered by it as they were five years ago, it is quite conceivable that private ownership in the States may be submerged by a great wave of popular indignation.

History shows not a few instances in which the railway policy of a country has been reversed within a very brief period. In the year 1879, the Prussian Landtag rejected Bismarck's system of State purchase by an almost unanimous vote, and six months afterwards in a new Landtag the purchase of the first great block of what is now the Prussian State railway system was carried by a large majority. In 1891, the Swiss people on a referendum rejected the purchase of the Swiss Central Railway by a two to one majority. And in 1898, also by a referendum, and also with a two to one majority, they voted for the purchase of all the main lines of the country. In June, 1903, the Italian Chamber of Deputies accepted, almost without hesitation, the report of a Railway Commission advising against State purchase. And in June, 1905, by an Act passed almost without discussion, the Italian Government took over the railways. In France, too, the Chambers of Commerce were practically unanimous in opposing the purchase of the Western Railway by the State. Their opposition was supported by a very great majority of the Deputies and Senators representing the district which that railway serves. But M. Clémenceau passed his bill and the "Compagnie de l'Ouest" is now "l'Ouest-Etat".

To turn from the stormy strife of American railroad politics to the drowsy atmosphere which surrounds similar questions in England is like passing from a stinging North Sea gale into some land-locked Norwegian fiord. Some two years ago I wrote in the *Bulletin*⁽¹⁾: "The old edifice of the English Railway system is tottering to its fall, and no one yet knows what will take its place." I ought perhaps to have added that the public and Parliament are entirely unaware that there was a system, and that it is tottering; and that none of the leaders of public opinion have as yet addressed

⁽¹⁾ Vide *Bulletin of the Railway Congress*, number of February, 1910, p. 985.

their minds to the question of what is to take the place of the system, of whose existence and of whose disappearance they are still unconscious. I remain, however, of opinion that my diagnosis of two years ago was correct. The old system is dead. Even in a rule-of-thumb country like England it must be replaced by some other system; and no serious attention has yet been given to the question what that system is to be.

In my article of two years ago, I was attempting to summarize the report of a Board of Trade conference. Within the last few weeks the Board of Trade has published a new report; the report this time of a Departmental Committee on Railway Agreements and Amalgamations ⁽¹⁾. The Committee was appointed in June, 1909. It consisted of ten members, of whom six were members of the legislature, three were lawyers with experience in railway matters, and one was apparently selected as a representative trader.

The Committee were appointed to "consider and report as soon as practicable what changes, if any, are expedient in the law relating to agreements among railway companies, and what, if any, general provisions ought to be embodied for the purpose of safeguarding the various interests affected in future Acts of Parliament authorizing railway amalgamations or working unions." The report of the Committee is a very interesting document. It covers 50 large and closely printed pages. It may be divided (though it is not so divided by the Committee), apart from the usual narrative and historical introduction, into three main heads. These may be described as:

- 1° Should railway co-operation be encouraged?
- 2° If so, what steps should be taken for this purpose?
- 3° What consequential changes in the public regulation of railways will be required?

With past history we need not concern ourselves here. The Committee discuss it under the various heads of competition in rates, in subsidiary charges, in facilities, in new lines, and miscellaneous. They come to the conclusion that competition as a regular force is dead or dying, that effects produced by competition in the past still to some extent persist and will persist though the cause has ceased, but that it is not safe to rely upon their persistence for the protection of the public.

⁽¹⁾ Cd 5631.

But they also report that they "have come to the further and unanimous conclusion that the natural lines of development of an improved and more economical railway system lie in the direction of more perfect understandings and co-operation between the various railway companies." This natural development cannot, the Committee think, be prevented by legislative or administrative action. They, therefore, on all grounds consider that the public authority should encourage and not attempt to hinder it. They recommend accordingly that every opportunity should be given to railway companies to enter into public and binding agreements, whether for amalgamation, for division of territory, for pooling of traffic, or whatever it may be. The detailed changes, whether in statute law, or in the traditional procedure of parliamentary committees, which the Committee consequently recommended, have no interest except for English readers, and may be passed by here.

The third head, which I have defined as "What consequential changes in the public regulation of railways will be required" under a non-competitive system, is naturally much the most important. And here, as it seems to me, the report takes a narrower view than we might have looked for. Broadly, the situation is this: A country may entrust its railways either to Government management or to private enterprise. If the latter system be chosen, there are again two alternatives: The private railway system may be based either on competition or on monopoly. England and Holland (and, until recently, Italy) have deliberately adopted the competitive basis. France has, equally deliberately, adopted the opposite system, and has given to each company, as far as possible, a carefully protected monopoly within its own district. Each system can claim both theoretical and historical justification. But they are diametrically opposed; and each system *ipso facto* excludes certain advantages which the other confers. The French system avoids the waste of capital implied in the unnecessary duplication of lines, and of income in the unnecessary duplication of services. But, on the other hand it confers on a company the opportunity of going to sleep with comparative impunity, and it necessitates the constant and persistent interference of the State to secure that the company shall give to the public accommodation that its own self-interest might often lead it to refuse.

Under a competitive system, on the other hand, even if a certain amount of so-called waste is inevitable, competition itself is

the main regulative force. To order a railway company to build a new line required in the public interest, but not likely to be profitable directly or indirectly to the company that builds it, to run a new train that will hardly do more than pay working expenses, to reduce rates, to build better rolling stock, and so forth—all these are matters of such administrative difficulty that a Government may well shrink from taking them in hand. Competition does the work automatically. Under a competitive system a company will probably build new lines, put on new trains, improve its rolling stock at an earlier stage than a Government would under a non-competitive system have ventured to order them. Such at least would seem the natural expectation *a priori*, and it is an expectation that, I venture to say, finds strong confirmation in railway history.

The Board of Trade Committee do not appear to perceive that a competitive system is one thing, and a non-competitive system another. They recognize that the English railway system has hitherto been based on competition; that the system of the future will have to be based on non-competition, and they apparently think that, with a certain limited amount of dotting of *Is* and crossing of *Ts*, the regulation that was adequate under the one system will suffice in the other. At present, for instance, a railway company cannot increase rates without the permission of the Railway Commission Court. The Committee recommend that in the future the same permission shall be required in the matter of decrease of accommodation, and of some twenty different recommendations made by the Committee, this is probably the most important. How it is to be carried out in practice one has difficulty in imagining. An express train, let us say, runs through between two important termini, A and B, a distance of 100 miles. It takes two and a half hours on the journey, and makes three stops at unimportant stations *en route*. The train is retimed. The local stops are cut out. It does the 100 miles in two hours, but the passengers from the intermediate stations have to travel by a slow train. A hundred through passengers *per diem* save half an hour, but six local passengers lose a whole hour apiece. Has the railway company increased or diminished its facilities? To enter upon an elaborate lawsuit, with all the paraphernalia of counsel and witnesses, to prove by sworn testimony to the satisfaction of a Law Court that the inconvenience of the six ought to be regarded rather than the convenience of the hundred, is surely impossible. You can regulate railways by Act of Parliament and

by lawsuits, provided Parliament and the Courts are only to interfere in important cases where great interests are involved. But to tell a suburban passenger that he must apply to a Law Court for redress, if a company bent on economy postpones heating the local trains from the 1st to the 15th of November, is merely laughable.

And this is not all. A system of regulation that confined itself to preserving the *status quo* might have been justifiable in China in the last century. But England is a progressive country, and we want something better than the *status quo*. We want progressive improvement. Hitherto our railway companies have given it to us in ample measure. Fifty years of competition over the 400 miles from London to Edinburgh have brought down the length of the journey from eighteen hours to seven and a half hours. No one will say that the service of today falls short of the reasonable standard of today. But the resources of civilization are not yet exhausted, and there are no grounds for supposing that fifty years hence fifty miles an hour will be a reasonable speed for a through express. Yet, if competition is abolished, and the companies which at present compete agree to pool their traffic there is no power to constrain them to accelerate. And the Board of Trade Committee are content to leave it so. They discuss the question of "extension of the rights of the public to compel the railway companies to grant increased facilities and reduced charges where such a course could be proved to be reasonable," and they deliberately refuse to recommend any change in this direction.

And herein lies, as I think the future will show, the crux of the question. Of course, if we are to continue to rely on Law Courts and legal procedure for protection of the public, the Committee are right. But to administer through the machinery of a Law Court the complicated affairs of a great business undertaking like that of a railway company is obviously out of the question. If control in this direction is to be exercised by public authority, it can only be by the administrative action of a department of the executive Government, armed with powers similar to those possessed by the French Ministry of Public Works. And, though the growth of the powers of our executive Government in recent years is sufficiently conspicuous, it is very questionable whether English public opinion is ripe for so great a change as this. With railway matters so far, public attention has concerned itself but little. When, however, the public began to pay attention and to understand the

new situation; when they appreciate that the country has been divided up into districts, settled not according to the convenience of the public, but according to that of the railway companies; that the condition of things in the year 1911 is to be taken as the standard of reasonableness for all time, and that any further improvements and concessions are only to be obtained at the good pleasure of the railway companies, and only so far as it suits the convenience of the companies to concede them;—then, as it seems to me, the recommendations of the Board of Trade Committee will not command any general acquiescence.

The Conclusion may be put very shortly thus. Competition is dead. It might have been possible to substitute for it a carefully thought out system of State regulation. No attempt is being made to provide such a substitute. The present position can accordingly only be very temporary, and the ultimate outcome can hardly be other than nationalization.

RAILWAYS AND NATIONALIZATION IN THE UNITED STATES*

BY W. F. ALLEN.

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A second edition of "Railways and Nationalization," originally published in 1908, has recently been issued by Mr. Edwin A. Pratt, with the view of bringing the history of the subject up to date.

Mr. Pratt writes with special regard to this question as it affects British Railways, to the nationalization of which he is opposed; but the facts that he has so carefully gathered are of world wide interest. Among these is a table showing that in a compilation, including 97.8 per cent of all the railways of the world, 69.1 per cent are owned and operated by private companies and 28.7 per cent are state owned. The figures in miles are 388,548 privately owned and 161,244 state owned. Of the former 218,101 miles are credited to the United States (the latest figures reported officially for October, 1911, were 245,633), so that even excluding the railroads of that country the majority is privately owned. None of these figures are later than those for 1908, but the percentages today would not probably materially differ.

Mr. Pratt is not strictly correct in classing all the railways of the United States as privately owned and operated. There are a few comparatively insignificant exceptions; the Panama Railroad, 47 miles in length, the old trans-isthmian railway, is now owned and operated by the United States government for traffic and in connection with the construction of the Panama canal. This case, of course, is exceptional; and as the traffic of the road will be presumably practically annihilated when the canal is opened for business, it need hardly be considered.

The Texas State Railway, 32 miles in length, is part of the penitentiary system of the State of Texas, which owns and operates it. There are also a few other lines owned but not operated by various governments in the United States.

**Review of "Railways and Nationalization" by E. A. Pratt, Second Edition, 1911, reprinted by permission from the Bulletin of the International Railway Congress.*

The word "nationalization," as Mr. Pratt notes, requires definition since there may be: 1st—State ownership resulting from either the construction or the purchase of railways, and 2d State operation thereof. In almost all cases where lines are operated by the State, the ownership is either actually in the latter, or their ultimate purchase is contemplated.

There are some hybrid cases where lines owned by private parties are operated by the government, or where lines owned by the governments are operated by private companies; but these are so few in number as not to materially affect the consideration of the question. There are many more miles of State-owned roads operated by private companies than of privately owned roads operated by governments.

Two other phases may be mentioned: the operation of the railways by the central government, as in Italy, and their operation by the several State administrations as in Germany. Still another method was proposed by a well known American politician: *viz.*: the operation of the trunk line railways in the United States by the general government and of the branch lines by the State governments. But this proposition, plainly seen to be absolutely impracticable, resulted only in seriously damaging, if not destroying, the political prospects of its proposer.

In investigating the origin of the State owned lines, both those constructed and those purchased by the State are scrutinized by Mr. Pratt, and in most of the more important cases political considerations have been the governing motives of the action. These considerations have sometimes been military, and sometimes have been based upon a jealousy or mistrust, more or less justified, of the ownership of the lines of transportation by the capitalists of another country, who might be moved by one motive or another to transfer the securities to their own government. In other instances, the political party in power has sought to increase its patronage and influence by the purchase or construction of lines, in the latter case generally when private capitalists were unwilling to risk the investment. Mr. Pratt refers also to the case of the railways of Italy, where in 1905, the government was obliged to relieve the private companies from the operation of the railways which they had formerly handled. The fact that the roads themselves were owned by the government facilitated, but did not cause, the transfer of the operating control.

From the earliest ages, governments have constructed roads. Although originally built, as the Roman roads were, mainly for military purposes, these highways were also available for commerce, the movement of which was privately exploited. It is not recorded that governments in the centuries passed have undertaken the business of conveying goods or passengers over these highways. The term "nationalization" as a latter day proposition, therefore, must be considered as referring to the transportation of passengers and freight, and not to the construction or ownership of the ways of communication.

Mr. Pratt points out the difficulties that would arise in any attempt on the part of the government of Great Britain to acquire the possession of and operate its railways, there being about 23,000 miles of road operated by some forty companies with between six and seven hundred thousand employes and a total capital of 6,400 millions of dollars.

The successful operation of any railway, apart from unfortuitous conditions, depends upon the ability of the man at the head of its affairs. Men of equal ability may serve either State operated or privately operated roads. But it is notorious that governments are ungrateful to the officials in the civil branches of their service and that the reward of ability and the opportunity of advancement, in rank and pecuniarily, are far greater in private service than in government service. In general, men of the highest grade of talent prefer private service and accept the other either from patriotic motives, or as a last resort. There are few officials of State operated roads who have come into close contact with the unhampered conditions which, until recently, at least, marked the service of officials in positions similar to their own, upon the privately operated American railways who have not envied them the advantages the latter possessed for rendering efficient service and receiving its deserved reward!

The annoyances to which officials of State operated railways are especially subjected has been demonstrated in widely separated parts of the world. In a number of instances, the opposition party has sought to place the blame for an accident, without regard to justice, upon officials high enough in office to make their discrediting a means of injuring the party in power. The employe actually to blame was one of a large class of clannish voters whose good will the opposition politicians hoped to secure.

In the case of a privately owned railway, the government could be called upon to intervene to prevent such injustice; but in these cases the governments were the actual defendants. The addition of the operation of the railways to the other activities of a government, increases greatly the difficulty in the just performance of its recognized functions of "defining and impartially punishing wrong doing."

In all republics and constitutional monarchies, the government is composed of the representatives of the party in power, whose continued ascendancy, whether rightly or not, its members must consider necessary to the good of the country. State railways therefore will always be operated for the benefit of the party in power rather than in the interest of traffic, and an excuse for this may be given on the ground that stability of administration is essential to the successful management of State-operated railways and that changes in party control make this impossible.

Government by party is government by the clique which controls the party, and in its final analysis by the beneficent or otherwise, leaders or *bosses* dominating this clique. It does not necessarily imply government by the most competent, but it may be merely government by those whose followers from one cause or another are temporarily most numerous at the polls.

State operation may lead to discriminations in favor of certain localities and industries; of this private managements have also been accused. The ostensible reasons for the discrimination may be sometimes the same with either; but in the case of the State operated railway, political reasons, partisan perhaps in their nature, are added to the commercial reasons which affect both alike. These reasons of either kind may or may not justify the discrimination; but in the case of the private road the absence of political reasons lessens the probability of injustice.

If there should be an act of injustice on the part of a private company, a means of redress is open through one or other form of court proceeding. In some forms of procedure, the government is the arbitrator, and in others, it becomes the prosecutor. In the case of the State operated railways, the government is here also the defendant. It requires no argument to demonstrate which of these situations tends to secure the best measure of justice to the complainant, it being a common contention of the officers of a govern-

ment that such matters are within their executive discretion and not subject to judicial interference.

Theoretically, all government officials ought to be impartial, but it is the common experience of those who have had occasion to deal with governments that it is extremely difficult to transact business satisfactorily with subordinate officials, because of their general unwillingness to consider anything but their own side of a case, or to favor anything that does not appear to give some petty advantage to the department they serve. The higher officials, when they can be reached, are as a rule broader minded, but an appeal means expense and delay.

Mr. Pratt quotes one trader as saying: "It is better to save the postage stamp" rather than to seek redress from a State operated railway.

The officials of a State operated road are peculiarly subject to political influences as to the number of their assistants. A well authenticated and not exceptional instance, not referred to by Mr. Pratt, is reported where an official occupying a position in charge of a certain section of a State operated railway privately admitted that he had forty employes kept by orders upon his pay roll whom he had never used in the work, many of whom he had never even seen. Some one or other of political influence, considered necessary to the party in power, would be seriously displeased if they were discharged. The enforcement of discipline under these conditions is impossible. This baleful influence is the inevitable result, sooner or later, of the intrusion of politics into railway operation.

A railway should be able year after year to increase the facilities which it offers to the public and demonstrate under all ordinary circumstances the efficiency of its business administration by showing a constant increase in its surplus from earnings. If it cannot do this, it is not in a healthy financial condition. It is like a child, which if it does not weigh more at the end of the year than at the beginning is considered to be in a serious condition of ill health and perhaps afflicted with *marasmus*. To prevent railway *marasmus* additional capital in excess of surplus earnings is absolutely necessary in all countries where progress has not ceased. Any stumbling block placed in the way of securing this necessary capital is injurious to the best interest of the nation. If the procurement of this capital is made to depend upon a government appropriation by parliamentary enactment, decided upon perhaps by the vote of a party caucus,

instead of upon business and market conditions, a most serious stumbling block in the way of obtaining the required development is introduced.

There are well known instances where railways, which have earned substantial profits when privately owned, have shown a continued deficit under state ownership and management, in spite of the best efforts of able officials in charge, such as the Western Railway of France. If these deficits were due to reductions in rates they might be regarded, by shippers, at least, as not without compensation. Comparisons of rates without intimate knowledge of conditions are apt to be deceptive, but a comparison of the charges before and after nationalization fails to develop that a reduction in rates in any instance was the cause of the deficit. On the contrary, Mr. Pratt states that recently in Hungary the nationalization of certain roads was followed by an increase in the rates of as much as 5 per cent.

Mr. Pratt points out that in their dealings with the public in the matter of charges, State operated railways have exactly the same complaints made against them as are made against the private companies.

In addition to a special variety of evils to which they are peculiarly liable, every practice charged against privately owned railways as objectionable, including discrimination in rates, rebating, etc., flourishes unchecked upon many of the State operated lines. For instance, on one large system of State owned and operated railways, whose recent successful management has won merited praise, no attention is paid to what is called in America the "long and short haul rate" when water competition makes it advisable for financial reasons to disregard it.

From all the facts Mr. Pratt presents, one reaches the conclusion that upon comparatively small systems either State operated or privately operated railways may be handled efficiently, if circumstances are favorable, depending largely upon the personal qualifications and ability of the officials in charge and the power entrusted to them. There is, however, of necessity more or less of a hampering rigidity controlling the operation of a nationalized railway that is not found in the case of those privately operated.

It appears also to be safe to conclude from the evidence at hand, that the best private management under sensible and restricted governmental supervision is more efficient in serving the

public than the best State management, while the worst examples of financial failure and inefficiency of operation are to be found among State operated railways.

From the excellent summary of his survey of the question which is presented by Mr. Pratt, the following extract is taken:

"State operation of railways has not been shown to be more economical, more efficient, and better for traders and travelers than operation by companies; whereas we have distinct evidence that State operation may involve: (a) deliberate presentation of the railway accounts in an unduly favorable light, in order to convey a wrong impression to the taxpayers; (b) the introduction into railway administration of political influences which render impossible operation on ordinary business lines, encourage deep-seated and wide-spread corruption, and tend to degrade the character and mar the efficiency of the national or colonial parliament; (c) serious evils in the creation of a large body of State servants, who may provoke grave labor troubles, or as elector employes, may either themselves use their political privileges to their personal advantage, or, alternatively, be made use of by government or parliamentary candidates to serve their own particular end, bribes being thus offered, or pledges being thus given, the fulfilment of which would be prejudicial both to railway and to national interests; and (d) a possibility that the desire of the railway companies to secure a reasonable return on invested capital, may be superseded by a much more active endeavor on the part of a finance minister to obtain large contributions from the railway revenue for the national exchequer.

"That even where State ownership of railways has been necessarily or justifiably adopted, such disadvantages and dangers as those mentioned and others besides, would be avoided by the State entrusting the actual operation of the lines, under suitable conditions, to private companies."

Mr. Pratt does not devote much space to the subject of "nationalization" as it is presented in the United States, and some further reference thereto may be regarded as pertinent.

Several of the States have had their experiments in government ownership and operation of roads within their limits, but all of these, with a single exception, have been denationalized so far as operation is concerned. Eighty miles of railway extending from Philadelphia to Columbia were built by the State of Pennsylvania

and operated unremuneratively by its government for several years to the general disgust of the people of the State. The road was, finally, sold to the Pennsylvania Railroad Company in 1857, and formed part of its original main line. Having been badly laid out, nearly all of the road has since been rebuilt on a better located line.

The Western & Atlantic Railway, 137 miles in length, was constructed and operated by the State of Georgia and is described as having gradually become a "prolific source of loss and injury to the community who had supplied the funds for its construction." It has been operated under lease since 1870, and is now a part of the line of the Nashville, Chattanooga & St. Louis Railway, although still owned by the State.

The State of North Carolina owns the majority of the stock of the North Carolina Railroad Company, with 224 miles of track, which is operated by the Southern Railway Company, under a ninety-nine years lease dating from 1896. This State was also at one time the sole owner of the Western North Carolina Railroad (185 miles) and operated it for five years from 1875. In 1880, the road was sold to a new corporation and eventually was acquired by the Southern Railway Company. The State now has no fiscal interest in it whatever.

The Hoosac Tunnel was constructed by the State of Massachusetts because it was supposed that its costs would be too great for private capital to undertake. The short line of railway passing through it was operated unsuccessfully by the State for a few years, was purchased by the Fitchburg Railroad Company in 1887, and is now part of the Boston & Maine Railroad System.

One-fifth of the stock of the Richmond, Fredericksburg & Potomac Railroad Company (81 miles) is owned by the State of Virginia, which has representation in its board of directors.

The State of New Jersey owns some of the stock of the United Railways of New Jersey and there is a "State director" on its board. The road was leased to the Pennsylvania Railroad in 1871 for nine hundred and ninety-nine years.

The City of Cincinnati built the Cincinnati Southern Railway (338 miles) in order to attract to the city the southern trade, which had previously had its only northern outlet by rail in that locality at the rival city of Louisville; but it has always been operated by one or another private company under lease.

There is nothing in the history of these ventures to encourage the belief that any advantage to the people would result from the State-operation of the railways.

Taking into consideration the whole of the United States, the nationalization of the railways would involve the purchase of 240,000 miles of railways operated by some thirteen hundred companies with one million six hundred and fifty thousand employes and a total capitalization of about 17,500 millions of dollars.

In addition to the railway lines, the American companies own interests in a large number of other industries of which the following may be mentioned: electric railways, elevators, warehouses, stock yards, telephone and telegraph lines, transfer, ferry, steamboat, canal, bridge, tunnel and express companies, mining, lumber, manufacturing, land, irrigation, turnpike and building companies, hotels and eating houses, banks, trust and insurance companies, opera houses, auditoriums, armories, markets, gas and water plants, fair grounds, parks, pleasure resorts, newspapers and other publications, etc. The amount so invested aggregates over four hundred and sixty millions of dollars. The operation of all these varied interests would have to be provided for by the government, if the American railways were nationalized.

The railway corporations are as a rule the creatures of the several States. They own and operate their properties by virtue of rights granted them by the governments of the States. No such company could alienate its property even to transfer it to the general government, either by sale or lease, without the consent of the State government. There are forty-eight States and the mass of legislation that would be required to obtain the passage of enactments necessary to carry into effect the nationalization of the railways would therefore be very great. It could not be successfully accomplished without the consent of both houses of the legislature and the governor of each State. Partial or progressive nationalization of any extent would be practically impossible as deep seated local jealousy and even moderate State pride would surely prevent it. It would be opposed even by those who hold no exaggerated views on the subject of "State Rights."

It is a curious fact, which may be mentioned as throwing a side light on the subject, that the right of a company chartered by a State to construct a railway upon land actually belonging to the general government was affirmed by President Lincoln

and afterwards reaffirmed by President Grant, neither of whom can be accused of having held an extreme view of the sacredness of "State Rights."

The efficient operation of a railway of even 1,000 miles in length requires the services of a man at its head, strong both physically and mentally. To operate efficiently a system of 240,000 miles of railway would, if it were possible, require an exceptionally competent, strong and active man at its head. Men of such exceptional character when placed at the head of a department of government, with great power and executive discretion necessarily intrusted to them, have proved themselves in all ages of the world to be extremely dangerous to the liberties of the people. On the other hand, a weak administration of so stupendous a railway system would result in uncertainty and disaster in its operation, to the incalculable injury of the country.

To those who advocate an extreme governmental control of the American railways as an antidote to the propagation of the idea of government operation, to which they are opposed, the study of the history of the nationalization of the German railways as stated by Mr. Pratt is suggestive. Bismarck, inspired by the thoughts of giving greater power and prestige to Prussia aimed to create an "Imperial system of State railways for the whole of the German Empire with Prussia at the head thereof."

As a logical step in this direction, he inaugurated "a strangling and starving campaign" against the private companies. This "naturally depreciated values and the government's eventual purchase was at a cheap rate." In the meantime, however, the jealousy of the governments of the other States was aroused against Prussia, and as a matter of self defense they themselves purchased the lines of railway within their respective boundaries, so that the only Imperial system in the German Empire is that of Alsace-Lorraine.

In the minds of some observers, the treatment that the American railways have received in recent years from many of the States, as well as from the national government, tends strongly towards nationalization instead of the opposite. The large additions to the expense of operation forced upon the roads by various enactments, the unnecessary shackling and harassing of their officials in the performance of their duties and in their exercise of discipline, the flood of legislation constantly being enacted or introduced adverse to or regardless of their interests, accompanied by the deprivation

or refusal of the right to increase rates in spite of the acknowledged increase in expenses due to higher wages, is regarded as a counterpart of the "strangling and starving campaign" ascribed to Bismarck, no matter what are the intentions of those who are responsible.

The question of the nationalization of the railways is, however, at present an academic rather than a practical one in the United States. Expressions as to its possibility come mainly from two sources, politicians who think they will secure popular favor by advocating extreme measures, on the one hand, and, on the other, capitalists and railway managers, who are disgusted with what they regard as excessive governmental interference with their business, and who feel that if the government is to exercise such a large measure of control over the management it should become directly responsible for the results.

The first-named class are the more demonstrative, but are comparatively weak in number and influence. None of the various numerous forms of socialism appears to be pleasing to the bulk of the American people; and although some minor political victories have been achieved by the united efforts of the advocates of all forms of that doctrine joined with the votes of those who were discontented with the nominations of the greater parties, such victories have been local, sporadic and inconclusive.

The distrust of the future felt by financiers, which may lead to inability to secure upon moderate terms the capital for the greatly needed development of the American railway system is a much more serious matter.

Careful investigators having unusually extensive means of obtaining information report, however, that there has been a decided change in sentiment recently in some parts of the United States where for a number of years radical measures only could obtain a hearing. For instance, the State of Texas, which embraces a territory of about as many square miles as Germany, Switzerland, Belgium, Holland and Denmark combined, with nearly 14,000 miles of railway, was one of the first to adopt a course of extreme and drastic regulations of its railways and other corporations. It now finds that capital cannot be obtained to increase the mileage or improve the facilities of the railways within its borders, both of which are greatly needed for its future advancement, and that other branches of business are also in a state of arrested development.

As a result, an organization has been formed of the business men of the State of all interests outside of the railways, and including many of the most influential of its public men, for the avowed purpose of reversing the policy that has so long prevailed. The organization is a very powerful and determined one and the results already achieved indicate its entire success in the near future. Although facing an intolerable condition it is significant that national or State ownership or operation of the railways as a remedy, forms no part of the program of this organization. Perhaps the fact that the State of Texas, as already mentioned, owns and operates the little railway 32 miles in length, constructed originally to carry ore and coal to a smelter worked by convicts at its penitentiary, and its subsequent financial history, may be the reason why the idea of State operation presents no attractions to the people of that commonwealth.

It is not in Texas alone that the reaction against the enactment of radical anti-railway measures has commenced. In at least fourteen other States where the legislatures heretofore have been vehement in their opposition to railway interests, it has been clearly demonstrated that such sentiments have ceased to be popular among the voters, and that the politicians having begun to be aware of this fact, are trimming their sails accordingly.

These manifestations are tending to reassure timid investors and if they continue, as seems probable, nationalization as a practical measure is not likely to be made on open issue. It would be advocated by "the same class of partisan agitators who made use of the 'Free Silver' issue" to further personal ambition. It is safe to say that an attempt to make the nationalization of railways a party issue in the United States would result, at the present time, in the overwhelming defeat of the party proposing it.

The general trend of opinion in America among those who have seriously considered the subject may be summarized as follows: that the general government of the United States has ample strength to easily dominate the largest private corporation that could operate within the boundaries of the country; but it is doubtful if it is strong enough to control such a gigantic concern as would be created within its own organism by the nationalization of the railways; and that such a huge creature would either dominate its creator by reason of its power and energy; or without recourse, crush and smother the activities of the people by mere inertness.

GOVERNMENT OWNERSHIP OF THE RAILWAYS AS UNNECESSARY AS IT IS UNDESIRABLE^(a)

BY FAIRFAX HARRISON,

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There is an Oriental fable of a discontented shepherd who was ruined by the accomplishment of his own wishes; he prayed for more water than he needed, the Ganges was turned into his grounds and his flock and cottage were swept away by the inundation. Can we find a moral in this for our present enquiry? The American is essentially a practical person. If we can demonstrate to him that he already has all he needs, it is not necessary to argue further, but it may not be out of place to point out that not only is government ownership of the railways unnecessary for his protection but that there are positive dangers lurking in the proposition.

It will be recalled that on his return from a tour of the world several years ago a certain Peerless Leader publicly proposed a political programme of government ownership of the railways—and that the suggestion fell still-born, even in his own party of radical tendencies. But in the interval we have seen other as novel and perhaps not less radical political principles propounded and seriously discussed, so while the progressive elements in contemporary American public life have not yet sought seriously to revive the suggestion that the government should take over our railways, it must be recognized that the doctrinaire opinion emanating from some of our colleges, which has been the spring of many current political dogmas, has not entirely abandoned this supposed solution of the railroad question, and that it is quite possible that it may yet be made a live political issue.

In any event the fact that certain European countries today own and operate some or all of their railways, that Australasia has built up her railway system on that basis, suffices to make the question one worthy of serious economic discussion, and, of course, it must be a favorite topic with that large and growing school of

(a) Address delivered at the University of the South, Sewanee, Tennessee, Aug. 1, 1911.

opinion whose thesis is that all public utilities should be in the hands of government. Our generation has seen a remarkable growth of municipal activity in the operation of municipal facilities; water works, gas and electric lighting plants have been taken over by cities, and, in certain instances, successfully maintained. The experiment has even been tried of municipally operated street railways, though today the pendulum of opinion has rather swung away from that experiment and the practical social democrat seems for the moment to content himself with public ownership of street franchises leased and operated by individual *entrepreneurs*. Because certain public utilities can be proven to be safe in the responsible charge of a municipality, it does not follow that all public utilities should be operated by political public authority. The logic of such an argument may seem complete, yet it is perhaps subject to the fallacy of the undistributed middle. But, even if the argument was logically sound, a moment's reflection upon the history of our successful political institutions will demonstrate that the difference between Anglo-Saxon and Latin processes of government lies largely in the daring disregard by the Anglo-Saxon of all logic in shaping his political destiny. Our principle has been that logic is magnificent but it is not politics.

Before we proceed with our argument it must be admitted that the advocates of government ownership of our railways are not all doctrinaires or radicals. Not a few of them are to be found among the owners of railway securities, for such have been the uncertainties of the railway industry in recent years by reason of a variety of economic causes, (among which may be cited as not the least the realized expectation of labor in constantly increased wages, and the accomplished requirement of governmental authority in matters adding arbitrarily to the expenses of operation) that many railway security holders, trembling over the uncertainty of the return on their invested savings, would welcome the opportunity to exchange what they have for the assured and stable income of a government bond. Indeed a railway security holder upon whom the government should today make demand to surrender his property would be much in the position of a slaveholder in Virginia in the middle of the XIX Century when agriculture with slave labor had reached its lowest economic ebb and abolition sentiment was rife. It will be recalled that John Randolph of Roanoke vehemently exclaimed in the House of Representatives that the time was soon

coming when the masters would run away from the slaves and be advertised by them in the public papers.

At the threshold of our enquiry as to government ownership of the railways, it is meet to ascertain why that step has been taken by those nations which have taken it, and it is curious that no two of them have taken it for the same reason, which seems to indicate that there is no deep underlying principle which demands it.

Bismarck planned to acquire the German railways for the German Empire as part of his scheme of political unification; after being committed to the policy, he acquired them for Prussia, and accomplished his political object indirectly. The Swiss and the Belgians took over their railways because they feared the domination of foreign capital. Italy and France were both compelled to the step as a consequence of original subsidies and to solve otherwise inextricable complications about government control of rates. The Australasian commonwealths built their own railways because the capital could not be secured except on the credit of the State, and, having built the lines, they assumed in the first instance to operate them. Perhaps the history of this last experiment will be like that of the State of Georgia with the Western & Atlantic Railway: After some years of operation by the State a private corporation was welcomed as lessee and has ever since continued to manage the property. The other States in the South which have surviving proprietary interests in their railways have always been content with private operation, *e. g.*, North Carolina with the North Carolina Railroad, and Virginia with the Richmond, Fredericksburg & Potomac Railroad; as is also the case with the Cincinnati Southern Railway, which belongs to the City of Cincinnati.

We can find no guiding precedent among these instances. None of them fits the present situation of the United States as a whole.

If, then, there is no other argument for government ownership than the interest of the public, it may be answered that the interest of the public can be, and will be, and indeed is, protected by Regulation. The interest of the public in the railways lies in three things: Honest Management, Efficient Service, and Reasonable Rates, without undue discrimination. None of these things would be promoted by government ownership, but all are now secured through Regulation.

Under existing conditions it is confidently claimed that railway management is honest, whatever may be said of the past history of

the railways in the control of those eponymous financial heroes of the tribe of Capt. Kidd and Black Beard, whose sins, committed during the period of construction or merger of the railroad systems which bear their names, were as scarlet as they were picturesque. But the management of the railways of today is not in the hands of pirates. That tribe is as extinct as the great auk, and while their example, like that of Clovis to the later Merovingian Kings, has been responsible for some lamentable instances of vulgar crime among a few unworthy railway officers, it can fairly be said that no department of the government can boast a body of men higher minded, better equipped or more scrupulous in the public service than the men in responsible charge of the railways today. They have mostly risen from the ranks and are the product of years of sound discipline in subordinate positions, so that they know the responsibility of command and at the same time can respect those subject to their orders. They represent indeed that high ideal of intelligent workmanship so eloquently described in Ruskin's fine exordium:

"To obey another man, to labour for him, yield reverence to him or to his place, is not slavery. It is often the best kind of liberty—liberty from care. The man who says to one Go, and he goeth, and to another Come, and he cometh, has in most cases more sense of restraint and difficulty than the man who obeys him. The movements of the one are hindered by the burden on his shoulder, of the other by the bridle on his lips; there is no way by which the burden may be lightened, but we need not suffer from the bridle if we do not champ at it. To yield reverence to another, to hold ourselves and our likes at his disposal, is not slavery; often it is the noblest state in which a man can live in this world."

Never was character at such a premium in the railway service as it is today.¹

¹Since this paper was prepared I have seen the following extract from a recent leading editorial in the *New York Sun* newspaper, and I am proud to know that the author had in mind some of the ornaments of the railway service: "The country needs men especially trained for the administrative responsibilities of business, men who have studied general, social and economic laws as well as the technicals of a particular industry. Their horizon must be wider and their grasp must be broader than that of those whose view is limited by the immediate balance sheet. There are such men now. They are being developed by the corporate regime, and the time will come when no man will be considered fit for the leadership of a great business who does not combine so-called business ability with economic grasp. When that time comes there will be needed no less than now not only trained leaders of industry and commerce, but trained leaders of finance. That the day of the greedy inflationist and conscienceless promoter is passing is evident. The leaders of finance of the future will develop in higher degree the qualities possessed by the greatest of the bankers of today. They will not be concerned with immediate profit, no matter what the future cost in social discontent, but they will have their minds upon the maintenance of that

Power in the hands of the individual is always a possibility of tyranny, and the power of the American railway manager is indeed great; not so great as it used to be in the days before Regulation, but it is still sufficiently great to compensate for some of the difficulties which hamper his work. Disraeli observed that a leader among the boys at an English Public School, a Captain of Eton or a Praefect of Winchester need never envy the Prime Minister of England, and that is the feeling of the modern railway manager in the United States. Yet his power is now tempered by Regulation, for he must account to Public Authority quite as much as to his Board of Directors. He sails between the Scylla of enforced resignation and the Charybdis of indictment; so that practically he is as responsible a public servant as if he held a government commission. It cannot be said, therefore, that government ownership is necessary on the ground of control of the integrity of management.

Nor is government ownership necessary to secure efficient service. It may be doubted whether an American railway operated by government would be as efficiently operated as it is under private management. Despite the recent criticism of the efficiency of the existing regime, Mr. Julius Kruttschnitt, himself an acknowledged master of efficiency of railway operation, has stated in his recent Harvard lecture his judgment that, as a whole, the American railways are now, and for many years past have been, operated with an efficiency which is astonishing, and that the public has got the benefit of it. In a striking graphic chart he shows the rates per passenger mile and per ton mile actually collected by the railways during the past fifteen years in comparison with what those rates might have been if they had followed the trend of labor and commodity prices during the same period, and he states his conclusion to be that, by the practice of efficiency methods by the railways, more than seven billion dollars was saved to the public in transportation charges in the fifteen years. For the year 1909 this means a

social condition in which the return to the wage earner, to the man who designs and directs, and to the savings of the man of thrift, will be kept as nearly in equilibrium as the fluctuations in the underlying conditions of nature will permit. The great leaders of finance will in increasing degree focus the judgment of the industrial and commercial world for the benefit of those who would securely invest their savings. That character and genuine ability are becoming more and more a potent factor in the conduct of the processes that promote material welfare is proved not only by the elimination of the malefactor from the positions of responsibility in the industrial and commercial corporations, but by the passing of the financial bounder. Ten years ago a profound remark of President Hadley of Yale met with derision from certain quarters, but the course of events proves that the force which works for righteousness is making good his dictum that the surest punishment for the man who has attained so-called pecuniary success through moral obliquity is social ostracism."

saving to the public of \$2,760,000 every twenty-four hours, or nearly three times Mr. Brandeis' famous million dollars a day.

The natural initiative of the American man of business working under the stress of competition leads him to experiment with new devices and adopt new methods from day to day in a way impossible to a government-managed industry. Concentration of responsibility is necessary for this, and the criticism of all government-managed railways in Europe is their rigidity. The individual officer may be fit but he is tied fast with red tape, in a way quite familiar to every one who has done business with the government of the United States. I have myself met, and measured, with the utmost respect for their individual professional equipment, some of the officers of the most criticized railway in the world—the State-ridden Western Railway of France.

The result of government management is almost inevitably bureaucracy, and what this means in comparison with private initiative in living industry can well be illustrated by the experience of Austria. Mr. Pattai, the President of the Austrian Chamber of Deputies, said in a speech delivered last summer:

"We have always been in favor of the State taking over the railways, but if we had been able to foresee the results of the management I assure you we would have hesitated a little longer. We are still in favor of the principle, but it does seem to us that our government has performed a remarkable feat when it has succeeded in creating a deficit on the Northern Railway, (which, under private management, earned six per cent dividends). The government have enlisted an army of new employes²; they have gone much too far in the reduction of hours of labor; instead of commercial management they have appointed lawyers to posts that require business men or experts; they have established an entirely unpracticable bureaucracy. At the present moment we are face to face with a deficit of \$25,000,000. There would be no deficit at all if the

²The course of the Austrian government in "enlisting an army of new employes" after taking over the railways was not exceptional. Within three years after the government in 1905 assumed the operation of the railways of Italy the number of employes was increased from 97,000 to 137,000. Critics of the government have attributed this to political influence. The growing demoralization which marked the operation of the roads while this increase of 30 per cent in the number of names on their pay roll was taking place shows that if additional men were employed to increase efficiency the purpose was not attained. The taking over of the private railways of Belgium by the state was followed by a large increase in the number of employes, and the same thing took place a short time ago on the Western Railway of France, after its acquisition by the government. It has been charged in the Canadian parliament that the government increases the number of employes of the Intercolonial during political campaigns to influence election results.

return from our railways were that which it ought to be.* I repeat that absolute imbecility has characterized the taking over of our railways. We must introduce business ideas into the government service."

If government ownership and operation is not likely to improve the efficiency of operation, neither is it necessary in the interest of the social uplift. What public opinion, working upon the natural law of competition, does not do in that respect can be and is adequately accomplished by Regulation. The modern State concerns itself with many social questions affecting industry without assuming the responsibility of ownership, so today by statute or by order of a commission the railways are scrupulously regulated in the interest of employes as well as the public; safety appliances are prescribed, working conditions and hours of service are modified, compensation for injuries is defined, train schedules are altered or fixed, new stations are built, so-called "full crews" are specified; indeed, it would be difficult to define any act of management in the public interest which the State has not assumed to regulate, for all that the Supreme Court has said that "in no proper sense is the public a general manager" of the railways.

The interest of the public in rates and adjustments of rates is undoubtedly safer under the existing regime of private initiative subject to regulation than it would be under government ownership. The selfish ambition of a part of the public is that rates shall constantly be reduced. Under the stress of competition, and with the aid of improved and cost-reducing methods of operation, the American railways have heretofore constantly met this ambition, and have reduced their rates. Recently they realized that they had gone too far in this process, and proposed a general advance in an amount which they considered necessary to compensate them for the additional burden they are now carrying. But Regulating Authority in-

*Almost the only state railways whose financial results appear to be satisfactory are those of Germany. Professor James Edward LeRossignol contributed an article to *Moody's Magazine* for August, 1907, in which he showed that after paying interest on the investment in them the New Zealand state railways were operated at a net loss of over \$850,000 per year. The gross earnings of the Intercolonial of Canada in 1909 were \$8,602,986, and its operating expenses were \$9,052,522, leaving a deficit of \$449,536. The interest on the investment in it at 4 per cent would be \$3,520,279, which would make the total deficit \$3,969,815. A writer in the *Toronto Mail and Empire* estimated in 1907 that the Intercolonial during the previous five years had made a dead loss of \$4,000,000. Allowing for interest on the investment the deficit of the Belgian state railways is estimated by Mr. Edwin A. Pratt at \$14,000,000 per year. The deficit of the Austrian railways already has been mentioned. The Russian railways are worked regularly with a heavy deficit. The Italian lines do not earn enough to pay more than one-fourth of the interest on the investment in them. These examples could be multiplied.

tervened and the proposed advances were prohibited, the railways being assured that the business of the country was adjusted to then existing conditions and the public interest was such that they must be content. It is not probable that if the government owned and operated the railways and felt the pinch of fiscal necessity it would be as considerate of the public as it is when it is regulating the management of private property; at least that has not been the experience in those countries where the government has been actuated by such responsibility. In Germany the railways were acquired with a promise that rates would be reduced. After the government got control and found the necessity for increased revenue, it not only did not fulfill its promise, but has since actually advanced the rates.⁴ General advances of rates to provide for fiscal necessities have also been made against the protests of the public on the government-owned railways in Russia, Austria Hungary, Denmark and Switzerland.

Mr. W. M. Acworth, the English economist, prescribes two qualifications for a rate maker: Expert knowledge and impartiality. He admits that a government officer may have expert knowledge as great as that of the officer of a private corporation, but he denies that the government officer can be as impartial. His argument is worth quoting at length, but it must be remembered that in speaking of a private company he is referring to English conditions where Regulation has not gone nearly as far as in the United States.

"Now we agreed (says Mr. Acworth) that expert knowledge was just as likely to be found in a state official as in the manager of a private company. But from whom are we most likely to secure our second desideratum, impartiality undisturbed by outside influence? Consideration of the normal organization of a private company and of a state undertaking will enable us to supply the answer. Take first the company. The manager of a private company is responsible to a board of directors who represent the shareholders, being, indeed, frequently large shareholders themselves.

⁴The consequence is that the Prussian state railways, which dominate the German system, pay 8 per cent on the actual cash investment in them. This is twice the percentage of return paid by the railways of the United States on their capitalization; and the investment per mile of the Prussian government in its railways is twice as great as the capitalization of the railways of the United States. There is nothing in the experience of Germany to give encouragement to those shippers who advocate government ownership on the theory that the adoption of this policy would lead to a reduction in the rates they have to pay. The average rate per ton per mile in the United States in the year ending June 30, 1909, was 7.63 mills. The average rates per ton per mile in some of the European countries where the railways are owned and operated by the state are as follows: Switzerland, 17.4 mills; Belgium, 16.8 mills; Hungary, 14.2 mills; Austria, 14.3 mills, and Germany, 14.1 mills.

Their interest is—indeed, it is a common reproach made against them—the dividend and nothing but the dividend. We may assume that, being ordinary human beings and disliking unnecessary friction, they will sympathize with Turgot's theory that in levying contributions it is desirable to pluck the maximum of feathers from the goose with the minimum of squawking. In other words, their natural tendency will be to support their manager in refusing to shear any individual lamb too close and in getting as much wool as possible from the lamb that can afford to lose it without making it suffer so much that its bleatings will be audible. In the essential positions of manager, directors and shareholders alike there is nothing to induce them unduly to prefer one locality to another, or one trade to another. In the interest of their own undertaking they will not kill a single goose that is either laying golden eggs at the moment, or is likely to begin to lay such eggs in the future. Indeed, if they are intelligent, they will desire to multiply to the utmost possible extent the breed of golden-egg-laying geese. The individual trader at A will naturally object strongly to any adjustment of rates that may enable traders at B or at C to compete in a market where he has a monopoly. But the natural instinct of directors and shareholders will be to support their manager in over-riding this objection, an objection which it is commonly considered ought not in the public interest to prevail.

“So much for commercial management. Now let us see how far impartiality is likely to be secured under a State railway system. At the head of the State railway system there must be in some shape or other a manager responsible to parliament. In other words, a person who is first and foremost a politician, and only in the second place a railway man. Is it reasonable to expect impartiality from a manager of railways with a seat in parliament, a member of a government whose life may come to a sudden end any day unless some important town, or some important trade can be, in American phrase, ‘placated’?”⁵

⁵The effect that political and sectional influences have on rate making by public authorities is shown by Professor Hugo R. Meyer in his book, “Government Regulation of Railway Rates.” Professor Meyer says that these influences cause rates to be adjusted in a way that is economically injurious, and that the German government has had to spend millions on the development of inland waterways, on which rates are made strictly on the principle of “what the traffic will bear,” in order to repair the damage being done to the industry of the country by the methods followed in making rates on the government railways.

Elmer Roberts, in an article on “German Railway Policy” in a recent issue of *Scribner's*, said:

“German railways, state and privately owned, yet under national supervision, give discriminating rates, grant rebates, treat localities and individuals exceptionally, charge all the traffic will bear under one set of conditions and

The greatest positive danger of government ownership lies in politics. There are upwards of 1,700,000 men now employed by the railroads of the United States earning over a billion dollars a year in wages, and if the government owned and operated the railways they would all become office holders. If we may believe the experience of Belgium and Italy, their numbers might be expected to increase rather than diminish under government management. It is not difficult to imagine what the result would be in practical politics, what pressure there would be upon a party in power for the existing jobs, and for the creation of new ones, a pressure which no civil service could altogether resist.⁶ A well-organized political

extraordinarily low rates for other circumstances, employing all the devices condemned and passionately opposed in America, and exercise all the powers of absolute monopoly."

He adds that these things are all done in Germany according to principles of equity. That is what the traffic managers of the railways of the United States have said regarding practices which have been condemned by public regulating authorities, who have then proceeded at once to establish other discriminations which they regarded as based on principles of equity. What are considered principles of equity depends very largely on the point of view.

Mr. Edwin A. Pratt, in his book entitled "State Railways," relates many incidents that have happened under government management which indicate what might take place in the United States under that policy. For example, after describing the demoralization of operation on the state railways of Italy after the government took them over he says:

"The fundamental reason for the reign of confusion thus brought about is to be found in the combined influences, the one upon the other, of the railways and politics. Under state operation the exercise of strict discipline over railway servants who are mostly electors, and whose votes are a consideration to be reckoned with by the government of the day, has practically disappeared. It is the railway servants who intimidate the minister of railways, rather than the minister of railways who controls the railway servants.

"In proof of this fact I might allude to the serious railway strikes which occurred in northern Italy at the time the government were proposing to operate the railways themselves. The general manager of the company concerned prosecuted some of the ringleaders; but the government—in order to keep on good terms with the railway men—forced him not only to take these ringleaders back, but even to pay them their wages for the time they had spent in prison, though he would not agree to the latter step until the government themselves found the money. For the foolish concessions thus made by the government, for purely political reasons, they have had to pay by submitting, in turn, and as they might have expected, to the coercion of the men.

"In the height of the present confusion on the lines the minister of the public works, who is also minister of railways, invited the former traffic manager of the *'Meridionali'* railways, then district manager of the Milan section of the state lines, to come to Rome and consult with him as to the best remedy to adopt for overcoming the trouble. The officer in question is one of the ablest and most experienced railway men in Italy. Requested to take over, with all possible despatch, the post of traffic manager of the entire state system, he agreed so to do, disposed of his house in Milan, and made the necessary arrangements for removing to Rome. But when the railway servants heard of what had been done they sent a deputation to the minister to say that if the appointment were persisted in they would all come out on strike. Their objection was, apparently, founded on the fact that the officer was known to be a strict disciplinarian. The minister gave way, cancelled the appointment, and left the officer to go back to Milan and find there another house in place of the one of which he had disposed.

"The example of surrender thus set by the responsible minister has been followed by the heads of departments, so that, in the words of one authority on the subject, 'They are afraid of ordering the railway men about, and the men work as they please. Never,' added my authority, 'has more convincing proof been given of the absolute necessity for the disfranchisement of any large body of workers when the undertaking on which they are employed is taken over by the state. In Italy, at least, though the minister may become a subject of ridicule, he is afraid to risk any prejudice to the political situation, and so he gives way to the coercion brought to bear against him by the very men he is supposed to direct.'"

machine would undoubtedly seek to control through patronage all railway votes for the party in power, and what this could be made to mean is evident from the mere fact that at the time of the election of 1908 there were over 200,000 more voters in the railway service than the sum of Mr. Taft's popular plurality.

The result of the election in the pivotal State of New York has more than once determined a presidential succession by a small plurality. If the men in railway service in New York could be voted as a unit, as most holders of office under the Federal government are now customarily voted, it could not be doubtful how the State would go. Is not this suggestion fraught with real danger to our political institutions?⁷

On the other hand we may consider the compensation which the labor unions might expect for political support. Under the existing regime they have steadily and successfully accomplished advances in wages and modifications of working conditions, which are the equivalent of increased expense to the railways. Is it likely that they would abate their demands upon government when they had the powerful engine of political pressure to supplement their present strength? It is not inconceivable that their success might make profitable operation by government an impossibility. This has been the result in Switzerland.

Having in mind these considerations let us then imagine a day in the Washington office of the Secretary of the new Department of Transportation.

The Secretary has just concluded his first six months of government management of the railways of the United States, but he is not altogether happy in his great office. The statement of the results of the six months' operation which lies before him is only part of his troubles, but that in itself should be enough. In pursuance of the pledge of his party platform on which a year ago he had triumphantly stumped the country, he began his administration by reducing rates. Although business has been fairly good, revenues have shown decreases from week to week from the very start,

⁷The political organization of labor in the Australian commonwealth of Victoria had been pursued for some years prior to 1903 and had gone so far that the public service was seriously affected. The aims of the so-called "Trades Hall," composed of labor unions of various kinds, were avowedly as much political as economic; the railway minister ordered the employes of the state railways to sever their connection with it, and the result was a strike of the railway employes. The government, after a bitter fight, won a complete victory, and then in 1906 passed a law which provided that no person employed in any capacity in the public service should either directly or indirectly take any part whatsoever in elections or directly or indirectly take any part in the political affairs of the state of Victoria, otherwise than by recording a vote at par-

owing to the reduced rates, and somehow there has not been accomplished that economy which he had proclaimed would come from increasing the wages of employes to the point where their individual responsibility for results would be awakened and high efficiency of labor ensue. This theory had sounded particularly well from the political platform and undoubtedly won many votes, but, while the Secretary had done his part and had increased wages in the amount fixed by a board of arbitration consisting of the heads of the various labor organizations, somehow the resulting efficiency was not forthcoming and the operating income was steadily less. The Secretary sometimes suspected that his managing organization was responsible for this, because on his coming into office he had reduced the salaries of all the general managers, in response to congressional criticism of the payment of higher salaries to railway officers than were paid to cabinet officers, and as a result most of his competent operating officers had resigned—"to engage in other business," the circulars read. The Secretary had heard that this had happened in Switzerland also and had never been quite comfortable in replacing the general managers, who had been born and bred on the road, by lawyers with political pull who were recommended by their Senators.

So the Secretary had determined on a reaction and had made several advances in specific commodity rates. This morning he was greeted from the top of his mail by a clipping from a Chicago newspaper denouncing this action, vocally accusing him of graft and demanding his immediate resignation. This was accompanied by a pleasant and clever cartoon depicting the maxim of Philip of Macedon that any fortress can be taken which can be reached by an ass laden with gold and in this case the fortress was labeled with the Secretary's name and its turrets aptly resembled the Secretary's peculiar ears.

Further down in the mail was a letter from the Board of Trade of Liverpool demanding that export bills of lading issued by station agents shall be personally endorsed by the President of the United States; a protest from a G. A. R. post against the Secretary's new system of scientific divisional organization because it was modeled on that of the Confederate army; a resolu-

liamentary elections; and that no person or class of persons so employed should directly or indirectly use or attempt to use any influence in respect to any matter affecting the remuneration or position in the public service of himself or any other person. For any violation of these provisions a railway employe or other employe in the public service may be deprived of his position.

tion of Congress calling for information as to the movement of switch engine No. 999 from roundhouse to shop without a "full crew," and the all steel caboose equipped with drinking water as required by the act of such a date; a protest by the Federal waterways commission against reducing rail rates in competition with the water rates obtaining on the rivers recently canalized by the government,⁸ a letter from the Department of the Interior demanding the concessions from published freight tariffs, on supplies shipped to Indian agents, which that Department was wont to demand of the railroads before the government took them over; and finally a communication from the Post Office Department advising that as the mail was running normally heavy the usual quadrennial weighing to determine mail pay would be postponed until the Department should determine that it was more to the interest of the Department to have it done.

Having read these pleasant and encouraging missives, the Secretary turned to receive his assembled visitors.

First, there was a delegation from a labor union, accompanied by a United States Senator, to demand the removal of the only efficient general manager left in the service (who for very love of the work had remained despite reduced pay), because he had ventured to close his shops when his appropriation was exhausted. Next was an influential member of Congress from one of the slum districts of New York, who had a reputation as an authority on political economy and represented the ultimate consumer. He wanted to know whether the generally expected deficit in the income account of the government operated railways was to be met out of general funds of the government and so fall upon the taxpayer at large; he argued, and the Secretary could not but recognize the force of it, that this was but another form of special privilege similar to the protection by customs tariff which had weighed upon the country for so many years and only recently had been removed; the reduction of rates for the benefit of the shipper with the effect of creating a deficit to be made up by the taxpayer was, he urged, worse tyranny than Schedule K itself.

The Secretary then turned with a heavy heart to delegations from the Chambers of Commerce of Boston, Seattle and Atlanta,

⁸The French government strictly enforces a rule upon both privately owned and state railways requiring them to make their rates 20 per cent higher than the rates of competing waterways, it being considered necessary to maintain this differential to keep the railways from attracting the traffic from the waterways. The policy of making the railways keep their rates higher than those of competing waterways also obtains in Germany, Belgium and other European countries.

who came to enquire whether the Secretary did in fact contemplate, as had been announced in the press, the introduction of the zone system of rates which is in force in Germany, for if so they all wanted to protest (on different specifications it is true) against wiping out the existing systems of rates, based, it was admitted, on apparent discrimination between localities, but they urged that they had done business on those rates for a generation and surely the Secretary did not wish to bring on an already nascent panic by throwing all established business into chaos⁹; the Secretary was too practical a patriot to do that.

The Secretary sighed, and, with pure intellectual relief, greeted a group of new and ambitious congressmen who wanted information on which to formulate the annual "pork barrel" bill for new construction of unprofitable branch lines to all county seats. At least the Secretary could sympathize with that; it was practical politics.

Last came the bureaucratic purchasing agent, and, with a complacent smile, reported that he had requisitions for one dozen fountain pens and can save three cents apiece on their cost if authorized to purchase a five years' supply. This was the last straw, the Secretary exploded, rehearsed the experience of Moses with the green spectacles in the Vicar of Wakefield, and went home to lunch.

The proposal that the government shall acquire and operate the railways is essentially an economic, a business question, but it must be decided in political debate. One is nevertheless encouraged to believe that the American people will, when called upon to do so, decide it right, because the most important and the most difficult economic question of this generation, that of the gold and silver standards, was determined correctly by popular vote in a fierce political campaign. That was a supreme evidence of one of the qualities of our civilization which a stranger cannot always understand. We live in an age when everything "progressive" seems to be considered sacrosanct, when the American people seem

⁹One of the immediate risks of government ownership, and indeed of any form of government rate-making as well, is the mere substitution of a new basis of discrimination as between localities for that found to exist. In Germany this dilemma drove the government rate-maker, in the beginning, to an automatic distance tariff.

Herr von Miquel, the Minister of Finance, stated in the Prussian Diet in 1894 "that it would prove impossible to retain the state ownership of the railways in Prussia unless it should be practicable to make rates in accordance with hard and fast rules." * * * "It would be impossible," he said, "to make rates for particular occasions to meet the needs of those occasions: for rates made in that manner were arbitrary, and exposed the government to the suspicion and to the open charge of favoring one district or trade and handicapping another." It is an interesting fact that, as pointed out in a previous note, the German government has not been able to maintain this hard and fast rule, however comfortable it may be for the bureaucrat.

to want to change institutions for the mere sake of change, yet in the last analysis sober judgment usually prevails. It is confidently expected that no such violent economic revolution as the taking over of the operation of the railways by the Federal government will ever get beyond the realm of debate; but perhaps even to debate it brings us within the shrewd comment of an intelligent observer in a recent English review :

"A passion for reform has seized the American people (says Mr. A. Maurice Low), and not to take part in the work of reform burdens their conscience. Not to hear the still small voice of reform is to be guilty of mortal civic sin. * * * *

"The historian of the next century will wonder what it was all about. The historian of the present century is equally puzzled to find the logical explanation. The historian that is to come will learnedly prove that the American people in the beginning of the twentieth century were suffering under an intolerable burden, that, sunk in sloth, they had permitted themselves to be robbed of their rights and at last rose in rebellion and were fired with a mission of reform. The perspective of a hundred years may enable a more correct view to be obtained of social conditions than we can get today living in the midst of them, but the *raison d'être* for this hysterical wave of reform that is engulfing a sober and intelligent people defies discovery. The Americans were never so well off as they are today, their future never appeared so bright, and yet they are discontented, frightened of themselves, fearful of what fate has in store for them."

EFFICIENT PUBLIC SERVICE OF THE RAILWAYS

By Julius Kruttschnitt, Director of Maintenance and Operation
Union Pacific System.

Abstract of an Address Delivered Before The Graduate School
of Business Administration, Harvard University,
Cambridge, Mass., April 26, 1911.

A railway is a machine designed to manufacture freight and passenger transportation; it makes ton miles and passenger miles. How this machine does its work is a matter of great interest and great importance to the public, for the railway derives its franchise from and renders its service to the public. The unit of freight service is one ton hauled one mile; of passenger service, one passenger hauled one mile. The people are concerned in the quantity and quality of the ton and passenger miles that the machine produces; in the cost incurred in their production, and in the prices—or rates—charged for them. They are concerned in the punctuality and safety of the transportation the railway furnishes, and, indeed, in all those characteristics of its management and operation, which, taken together, make for efficiency or inefficiency.

The efficiency with which any one of our railways is, or all of them considered as a single system, are managed, must be gauged by the results produced by the machine as a whole. Criticism has sometimes been made that parts of it are not efficiently operated. No railway man will deny that some parts of the transportation plant are not worked to their maximum possible capacity.

It can be shown, for example, that the average tractive power of locomotives, and capacity of freight cars, have increased faster than the amount of traffic which, on the average, is hauled per locomotive and per car. It can be shown that the amount of mail handled per postal car is much less than the average amount which each car is capable of transporting. It can be shown that the average number of passengers hauled per train is much less than the average passenger train can easily accommodate. But while it may easily be demonstrated that the maximum *possible* efficiency with which different parts of the railway plant might be operated

under ideal conditions is not attained, it would be much harder to show that the maximum efficiency *practicable* under the conditions which actually exist, and with which the railway managers have to deal, is not approached. The railway manager has not, never has had, and never can have, the same degree of control over the operations of his plant and of each part of it that the manager of a mercantile or a manufacturing concern may exercise. Shippers demand, and properly, that freight shall be transported with regularity and expedition; and speedy and regular transportation are important elements in efficiency of operation. But it is often not practicable to move freight with the maximum speed and regularity and at the same time hold cars and engines at terminals until the maximum car load and the maximum train load have been obtained. It would be easily possible for the railways to haul a much larger average load of mail per mail car; but under regulations of the postal department postal cars are limited to a carrying capacity of only about three tons, whereas express cars can easily be loaded to the roof with twenty to thirty tons of express. Again, in the passenger service the reason why the railways on the average haul only fifty-four passengers per train when the average train has a capacity of at least one hundred and fifty passengers is that the public demands, and properly, that it be given frequent and regular service, and frequent and regular service is incompatible with the maximum loading of trains.

The facts which I have just cited illustrate one point which has been quite generally overlooked in discussions of railway efficiency. This is, that efficiency from the standpoint of the railway manager often is not the same thing as efficiency from the standpoint of the public. Efficiency from the standpoint of the railway may consist in loading cars and trains to their capacity and moving only the minimum number of cars and trains necessary to handle the business. Efficiency from the manager's standpoint may involve a relatively slow movement of trains, because the faster engines are driven the greater the amount of fuel they consume and the smaller the load they can pull, the result being that the cost of running the train is increased while the revenue derived from running it is reduced. On the other hand, as I have said, speedy, frequent and regular service is a very important factor in efficiency from the standpoint of the public. Now, when the public insists on a kind of transportation which is incompatible with the most economical operation, no one

can justly criticise the railway managers for complying with the public's demands, and for that reason failing to operate the properties with the maximum possible economy. If the railway managers operate the properties, not with the maximum economy that might be *possible* under certain *conceivable* conditions, but with the maximum economy that is *practicable* under the *actual* conditions with which they have to deal, they do all that they reasonably can be asked to do. I think that the railway managers of the United States are approximately much closer to the maximum *practicable* efficiency and economy of operation than most people believe.

The gentlemen whom I have the honor of addressing tonight will soon be actively participating in the affairs of this country; many may become interested in railways and many may be occupying seats in state and national legislative bodies, on municipal, federal and state commissions, or even much higher offices, regulating the railways that their comrades have bought. It is important that such men should be properly informed regarding important questions affecting so great an industry as that of transportation. It shall be my endeavor, therefore, to demonstrate to you that the popular clamor about inefficiency in the management of our railways is unjustified; and by doing so to try to show you why you should bring the light of reason to bear on all questions pertaining to railways that may be presented to you in future, resisting temptation to tinker with or attempt to repair a piece of machinery until it is thoroughly understood, heeding the wise injunction that I remember, as a child, to have seen prominently displayed on French mechanical toys:

"Quoi qu'elle soit très solidement montée il ne faut pas brutaliser la machine."

There are three ways by which we may measure the present efficiency of our railways. One is to compare their operations with those of foreign railways. Another is to compare their present with their own past operations. Another is to compare their operations with those of concerns in other lines of industry. I shall use all of these methods.

EFFICIENCY OF CAPITAL INVESTED IN AMERICAN AND IN FOREIGN RAILWAYS.

I have chosen for comparison with the railways of the United States those of the United Kingdom, Germany, France and Switzer-

land. The railways of two of these countries, Germany and Switzerland, are in the main owned and operated by the governments; and those of the United Kingdom, which are privately owned, and of France, most of which are privately owned, would naturally be included in any comparison. One of the best tests of the efficiency with which any business is managed is the ratio between the capital invested in it and the results obtained with that capital. The capitalization per mile of the railways of the United Kingdom, Germany, France, Switzerland and the United States, and the relation between their capitalization and the results of their operation are shown in Table I, and, graphically, in Chart A.

The capitalization per mile of the American roads, you will observe, is very much smaller than that of the roads in any of the other countries. This is very largely due to the conservative policy that has been followed by our railways of paying for many improvements, such as renewals with heavier rails and fastenings, larger

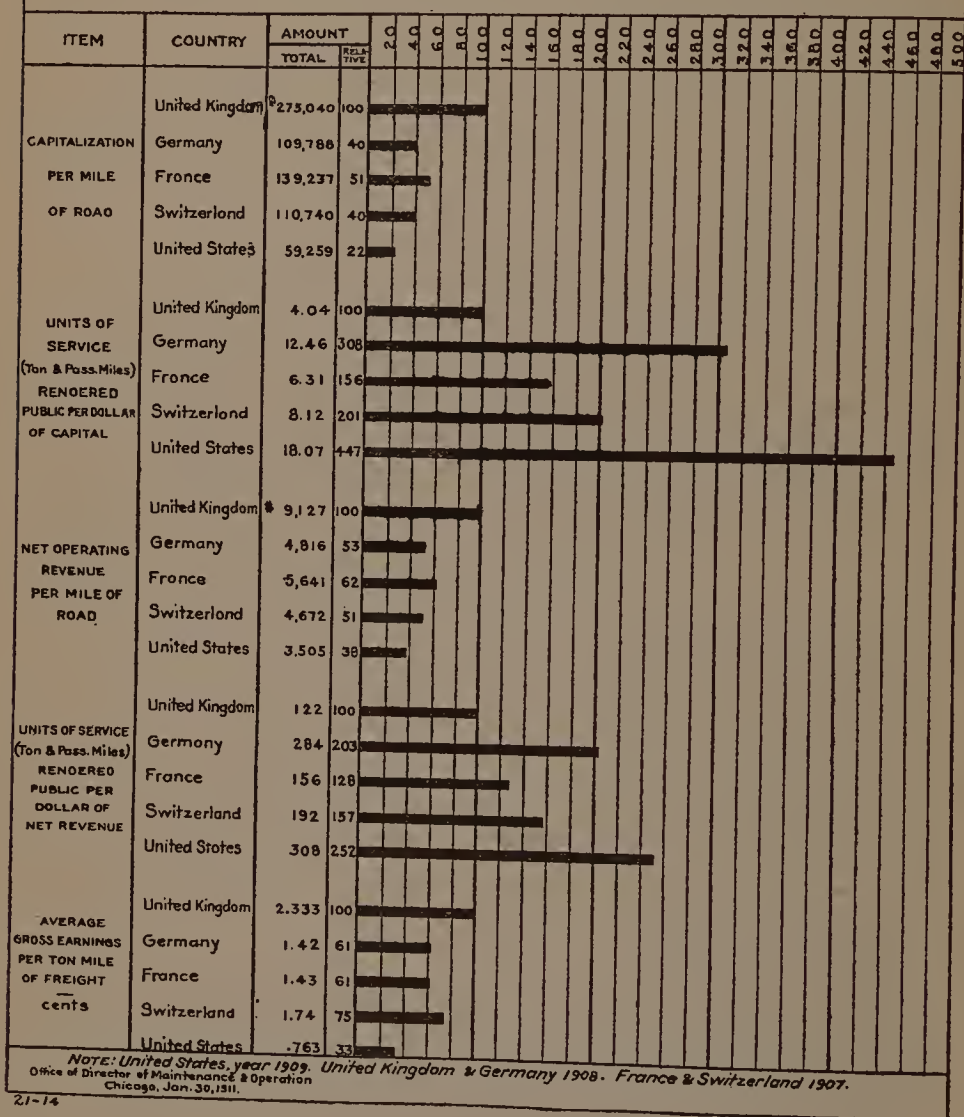
TABLE 1.—CAPITALIZATION AND RESULTS OF OPERATION.

	United States. 1909.	United Kingdom. 1908.	Germany. 1908.	France. 1907.	Switzer- land. 1907.
1. Capitalization per mile of road	\$ 59,259	\$ 275,040	\$ 109,788	\$139,237	\$110,740
2. Units of freight and passenger service per dollar of capital	18.07	4.04	12.46	6.31	8.12
3. Relative service per dollar of capital.....	447	100	308	156	201
4. Net operating revenue per mile of road.....	\$3,505	\$9,127	\$4,816	\$5,641	\$4,672
5. Ton miles freight per mile of road.....	953,986	529,622	827,400	496,939	442,012
6. Ton miles freight per dollar net revenue.....	272	58	172	88	95
7. Passengers one mile per mile of road.....	127,299	580,044	540,045	380,355	456,654
8. Passenger and freight units service per mile of road	1,081,285	1,109,666	1,367,445	877,294	898,666
9. Units of passenger and freight service per dollar net revenue.....	308	122	284	156	192
10. Average earnings per passenger mile, cents...	1.928	1.542	0.93	1.54	1.30
11. Average earnings per ton mile, cents .....	.763	2.333	1.42	1.43	1.74

Authorities: I. C. Statistics of Rys. of U. S., 1909; Report of British Board of Trade, 1908; Statistik der im Betriebe befindlichen Eisenbahnen Deutschlands, 1908; Statistical Abstract for Foreign Countries, issued by British Govt., March, 1910; Statistiques des Chemins de fer Suisses, 1907.

CHART A

RELATIVE EFFICIENCY OF CAPITAL AND PUBLIC SERVICE OF THE RAILROADS
OF THE UNITED STATES, UNITED KINGDOM, GERMANY, FRANCE AND SWITZERLAND



cross ties, etc., out of earnings and charging them to operating expenses instead of to capital account.

The very large capitalization per mile of the British roads is to a great extent a result of following the opposite policy—that of charging all additions and improvements, no matter how small, to capital. The effect of this policy has been to embarrass the English railways

seriously, and even to raise grave fears as to their continued solvency.

As I have already said, the units of service rendered by the railway to the public are one ton hauled one mile and one passenger hauled one mile. It is for rendering these services that the public creates and pays the railway. Every dollar of capital which the owners of the railways of the United States have invested renders four and a half times the service that the same dollar renders in the United Kingdom; one and a half times as much as in Germany; three times as much as in France, and two and a fourth times as much as in Switzerland.

It will be noted that the net operating revenues per mile of road—that is, the net earnings or annual rental paid by the public for the hire of capital—in the railways of the United States are smaller than those of any of the other railways with which comparison is made. For every dollar of net earnings the railways of the United States rendered two and a half times as much service to the public as did the railways of the United Kingdom, and twice as much as did the railways of France. The Swiss and German railroads are owned and operated by the governments; and yet for every dollar of net earnings the railways of the United States rendered from one and a fourth to one and a half times as much service to the public as did the railways of Switzerland and Germany. And they did so while charging the lowest average freight rates in the world. In other words, the owners of the railways of the United States received less profit in proportion to the amount of service that they rendered to their patrons than did the owners of any of the other railways; and the amounts that they charged shippers for rendering these services were smaller than the amounts charged the shippers by the railways of any of the other countries.

Let me try to indicate the results by another comparison. For the net amount earned on each dollar of capital the railways of the United States moved a passenger and about five and a half tons of freight one mile; those in the United Kingdom, a passenger and only .85 of a ton of freight, and those in Germany, a passenger and three tons of freight.

Because the owners of our roads received less in proportion to the services rendered by them than did the owners of any of the other railways, they might very well pronounce the management of their properties comparatively *inefficient*, but the users—the public

—that received more services in proportion to what they paid than did the users of any of the foreign railways, have every reason to consider the management highly *efficient*.

INCREASE OF EFFICIENCY OF UNITED STATES RAILWAYS IN TWENTY YEARS.

Let us now turn from the comparison of the efficiency of our own with foreign railways to a comparison of the present with the past efficiency of our railways. Table 2 and Chart B show the increases from 1889 to 1899, and then to 1909, in the capitalization of our railways, in taxes paid by them, in their sidings and additional main tracks, and in locomotives, passenger and freight cars, and also the increase between these years in the public service rendered per dollar of capital and per dollar of earnings over expenses.

It is a very remarkable fact that the increase in capitalization in twenty years was only \$11,200 per mile, or 23 per cent. The cost of additional side tracks and equipment would easily cover \$7,000 per mile of this increase. This leaves but \$4,200 to represent the very large sums spent principally in the last ten or twelve years in the practical reconstruction of many important railways, which involved extensive reductions of grades and rectifications of curves; the building of additional expensive stations and terminals; the ballasting and tie-plating of tracks; the laying of heavier rails and ties; the construction of heavier bridges; the installation of interlocking and signalling systems; the replacement of perishable wooden by permanent structures using cement, masonry and steel; and the accomplishment of numerous other betterments. These improvements represent an average expenditure of very much more than \$4,200 per mile; and that the increase in capitalization has been so small has been due to the fact that, as previously stated, much of the expenditure for them has been out of earnings and has not been capitalized. It is not represented by securities at all; but it is very clearly reflected in the more substantial character of the property and in a very large increase in its value.

The American practice of investing large amounts of earnings in improvements, together with the rapid rise in property values caused by the development of our country, has made the actual physical value of our railways much larger at the present time than their capitalization, regardless of "stock watering" that may have been done in the past. In several instances, notably in the states of

Minnesota and Washington, valuations of railroad properties made by public commissions have exceeded the total capitalizations of the roads included. The boards of assessors in many states have made official records of their opinions that the increase in the value of the railways of the United States during the last two decades has been greater than the increase in their capitalization. The capitalization per mile increased from \$48,028 in 1889 to \$59,259 in 1909, or 23 per cent. Meantime the taxes which the railways were obliged to pay increased from \$179 to \$401 per mile of road, two and a quarter times as much, or 124 per cent. Assume, for the purpose of this discussion, that one-third of the capital of \$48,000 in 1889 was fictitious or "water," the real value was only \$32,000 per mile. An increase of 124 per cent in that amount makes \$72,000 per mile, which we may take as the estimate of the public through its taxing authorities of the present value of our railways, as compared with their actual capitalization of only \$59,259 per mile.

While capitalization per mile has increased only 23 per cent and taxes per mile have increased 124 per cent, the intensive development of the properties has been so carried forward that the increase in the mileage of additional main and side tracks has been 66 per cent, the increase in the number of locomotives 28 per cent, in passenger cars 16 per cent, and in freight cars 58 per cent. This takes no account of the great enlargement of the capacity of equipment, which was proportionately in excess of the increase in its amount. In consequence of the improvements indicated by these figures the

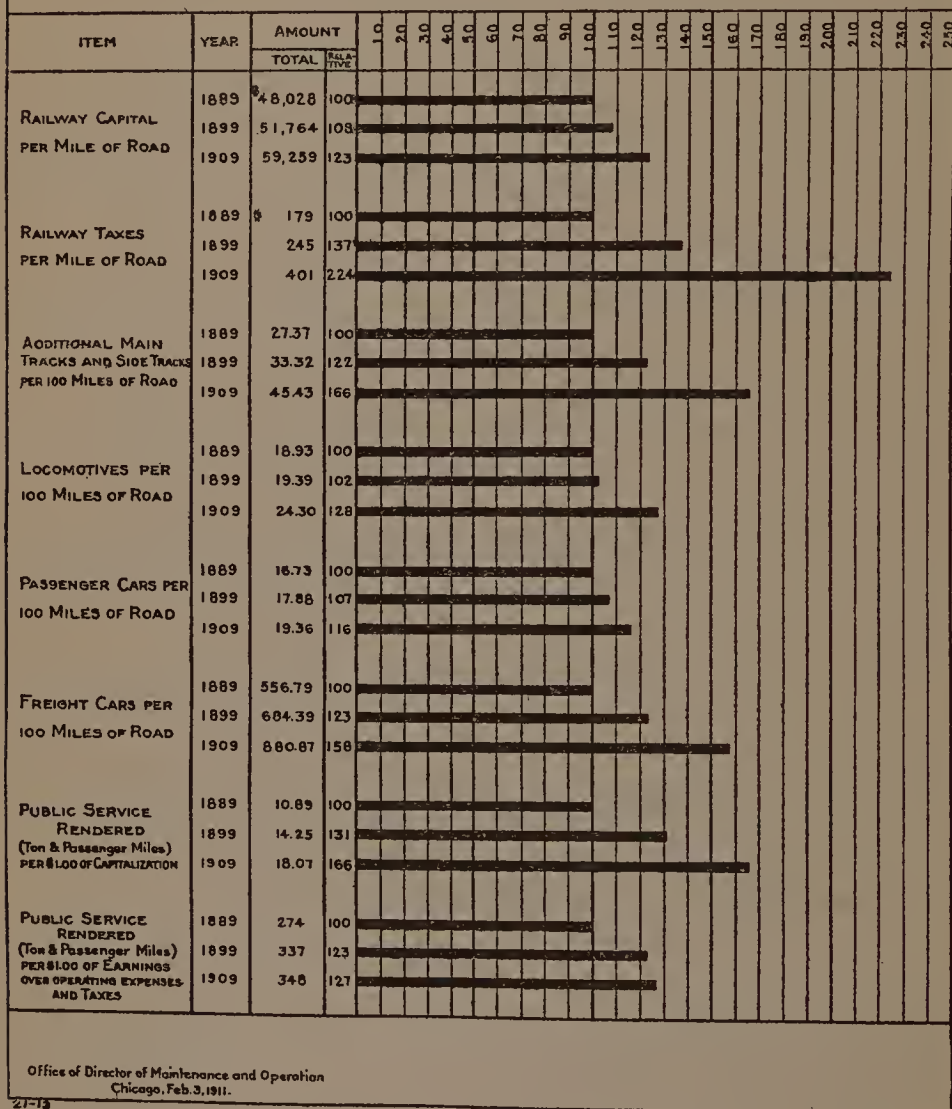
TABLE 2.—COMPARATIVE CAPITALIZATION AND SERVICE RENDERED THE PUBLIC, OF RAILWAYS OF UNITED STATES, YEARS 1889, 1899 AND 1909.

	Totals or Averages.			Relative.		
	1909	1899	1889	1909	1899	1889
1. Railway capital per mile of road...	\$59,259	\$51,764	\$48,028	123	108	100
2. Railway taxes per mile of road...	\$401	\$245	\$179	224	137	100
Certain facilities per 100 miles of road:						
3. Additional main track and sidings	45.43	33.32	27.37	166	122	100
4. Locomotives	24.30	19.39	18.93	128	102	100
5. Passenger cars	19.36	17.88	16.73	116	107	100
6. Freight cars	880.87	684.39	556.79	158	123	100
7. Operating expenses and taxes per \$1,000 of capitalization.....	\$123.25	\$104.50	\$91.26	135	115	100
8. Public service rendered (ton and passenger miles):						
A—Per \$1.00 of capitalization.....	18.07	14.25	10.89	166	131	100
B—Per \$1.00 of earnings over expenses and taxes.....	348	337	274	127	123	100

CHART B

Chart B

**CAPITALIZATION AND PUBLIC SERVICE OF RAILROADS OF THE
UNITED STATES IN 1889, 1899 AND 1909**



railways were enabled to so increase their efficiency that at the end of the twenty years period they rendered 66 per cent more public service for each dollar of their capitalization than they did at its beginning. In spite of a 35 per cent increase in operating expenses and taxes per dollar of capital, they rendered, in 1909, 27 per cent more service per dollar of earnings over operating expenses than they did in 1889.

COMPARISON OF THE EFFICIENCY OF THE MANUFACTURERS OF TRANSPORTATION WITH THAT OF MANUFACTURERS IN GENERAL.

As already indicated, a railroad is a manufacturing plant designed to produce transportation units; that is, ton and passenger miles. These are the commodities the sale of which produces the railroad's revenue. A comparison of the results obtained in the manufacture of transportation and in the manufacture of commodities in general may, therefore, throw light on the relative efficiency with which these two branches of industry are managed.

The statistics available regarding the results of the operation of manufacturers in general are much less complete and accurate than are the statistics of the Interstate Commerce Commission regarding the operations of railways. Therefore, no exact statistical comparison between manufacturing and transportation can be made. But the statistics that are available render it possible to make a comparison which, while having no claim to extreme accuracy, will at least enable us to form a reliable general idea of the relative efficiency with which these two branches of industry are conducted.

The accompanying statistical tables, headed "Manufactures" and "Railroads," have been compiled from the reports of the Interstate Commerce Commission, and the special Census of Manufactures made by the government in 1905.

MANUFACTURES.

	1905.	1900.	or Dec.
Capital	\$13,872,035,371	\$9,817,434,799	+41.3 of Inc.
			Per cent
Number wage earners.....	6,718,618	5,705,165	+17.8
Net returns for products.....	\$2,093,893,976	\$1,905,185,604	+ 9.9
Amount capital per worker.....	\$2,084	\$1,724	+20.9
Amount net earnings per worker.....	\$ 312	\$ 343	— 9.0
Average wages per worker.....	\$ 539	\$ 477	+13.0
Total wages per \$1.00 of net earnings..	\$1.730	\$1.430	+21.0
Net returns for each \$100.00 of capital.	\$15.10	\$19.40	—22.2

RAILROADS.

Capital	\$13,805,258,121	\$11,491,034,960	+20.1
Number wage earners.....	1,382,196	1,017,653	+35.8
Net earnings	\$616,341,657	\$471,851,036	+30.6
Amount capital per worker.....	\$9,988	\$11,111	—10.1
Amount net earnings per worker.....	\$ 447	\$ 465	— 3.9
Average wages per worker.....	\$ 607	\$ 567	+ 7.1
Total wages per \$1.00 of net earnings..	\$1.362	\$ 1.223	+11.3
Net returns for each \$100.00 of capital	\$ 4.40	\$ 4.10	+ 7.3

It will be seen that the capitalization of the railways was substantially larger in 1900 than that of manufacturing concerns, while in 1905 it was about the same. The figure for railway capitalization which I have used here is for gross capitalization and not for net capitalization, the latter of which is arrived at by excluding from consideration that portion of the securities which is owned by railway corporations themselves. In the previous table I used net capitalization per mile, but in this case it is necessary, for reasons which need not be stated, to use the gross capitalization in order to make the comparison with manufactories complete. It will be seen that the return on capital invested in manufactories was 19.4 per cent in 1900, while the return on railway capital was 4.10 per cent in 1900, and 4.40 in 1905. While the return on railway capital was so much smaller, the figures indicate that the railways are much more economically and efficiently managed than the manufactories. In 1905 railways paid 13 per cent higher wages to employes than manufacturers paid, and to work an equal capital they employed 79 per cent less employes. The labor of each employe utilized 379 per cent more capital, and each railway employe produced 43 per cent more net earnings for his employer. The final test and outcome of the relative efficiency are found in the fact that it cost the railroads only \$1.36 in wages to earn each \$1.00 of net earnings, while it cost the manufacturers \$1.73 to produce each \$1.00 of net earnings, or 27 per cent more.

ACCIDENT RECORD OF MANUFACTORIES OF TRANSPORTATION.

One thing which not a few persons consider strong evidence that our railways are inefficiently managed is their accident record. It is true that casualties to persons are more numerous on American than on European railways, but there are reasons for this which those who criticise our railways are apt to overlook. In his book entitled "Safety of British Railways," Mr. H. Rayner Wilson, a good authority, has expressed the opinion that the real reason for the bad accident record on the railways of the United States is the inherent love of Americans for taking chances and their little respect for discipline or rule. Mr. W. M. Acworth, a high authority, in speaking of the British railway employe, says he is more amenable to discipline than the shifting and often even foreign force employed on our railways. On the average, fully 50 per cent of those killed in railway accidents in the United States are trespassers on the railway's property. Trespassing is prevented in European

countries by strict laws strictly enforced. The large number of trespassers killed in this country is evidence, not of the inefficiency of the railways, but of the inefficiency of government. Furthermore, because of the greater density of population, and therefore of traffic, the railways of the leading countries of Europe have a much larger amount of double track than those of United States, which greatly reduces the danger of collision. If laws against trespassing were enforced here as they are abroad, and the railways of the United States had as large net earnings per mile as those of Europe, travel could and would be made much safer here than at present. As I have already shown you, however, the net earnings of the railways of the United States per mile are only \$3,505, while those of the German roads are \$4,816, and those of the British roads, \$9,127.

However, contrary to general belief, great progress has been made by the American roads within the last two decades in making transportation safer, and this has been done notwithstanding the number and speed of fast passenger trains, to which most of the fatal accidents are attributable, have been increased; that the density of traffic has been largely augmented; and that the rapid growth of business has made necessary the employment of numerous inexperienced men and the promotion to responsible positions in train service of others with less experience than would ordinarily be put in such service.

Owing to acts of Congress requiring reports of individual casualties, the statistics of the Interstate Commerce Commission regarding them are, for recent years, extremely complete. They were much less complete in earlier years, as then the carriers had to make only annual reports; and there is no question that many minor injuries now reported under the head of "persons injured" escaped notice and were not included in the earlier reports. The ratio of injuries to fatalities reported in 1889 was 4.5; in 1899, 6.2; and in 1909, nearly 11. It is fair to assume that the ratio between injuries and fatalities remains reasonably constant; and the fact that the ratio between those reported have not remained constant, justifies the belief that in the earlier years a smaller proportion of injuries was reported than is now the case. I believe, therefore, that the only way to arrive at a correct conclusion as to the relative safety of travel at present and in past years, is to ignore the statistics as to

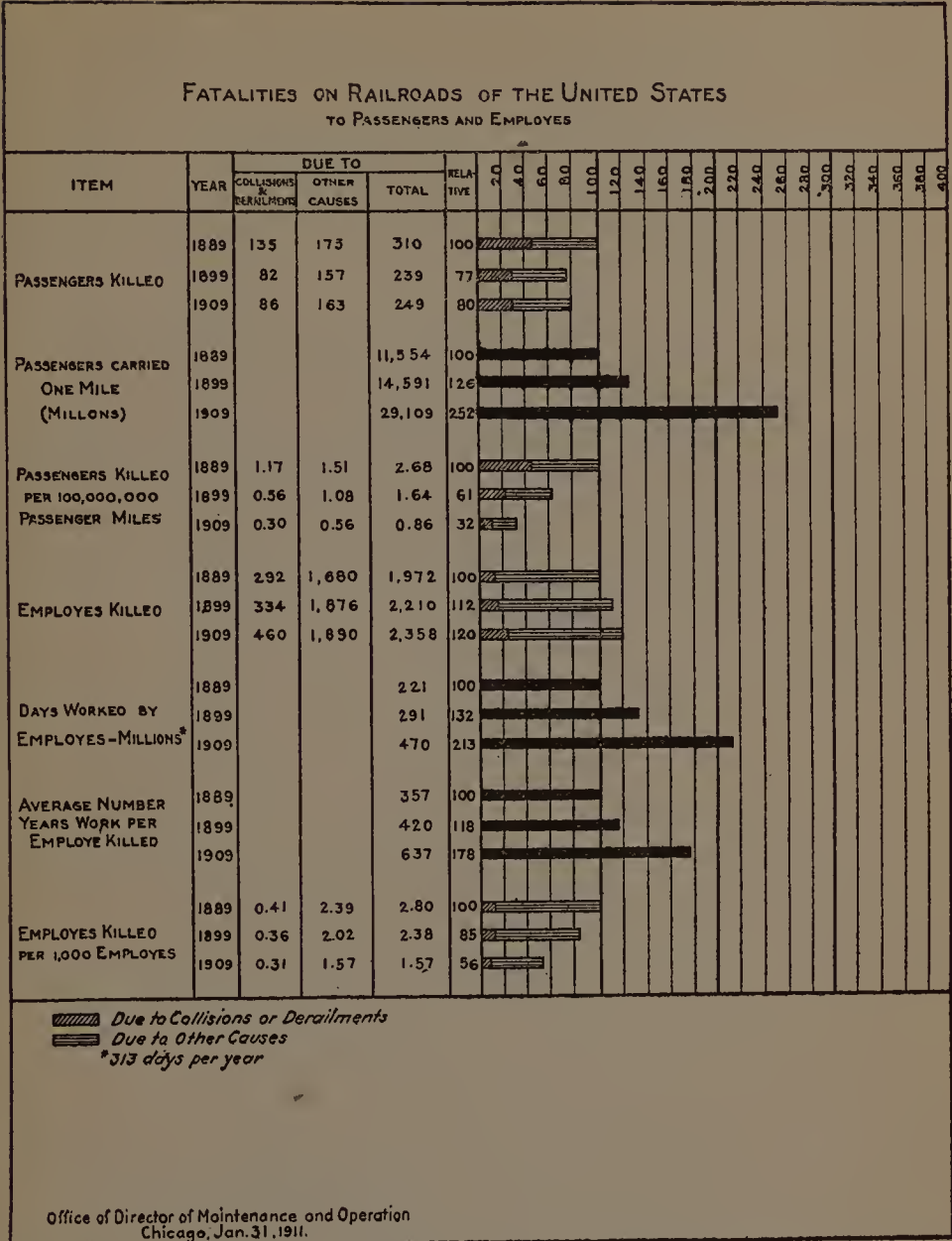
injuries and to make comparisons only between the numbers of fatalities, every one of which necessarily has been reported.

Table 3 and Chart D show that both travel and employment on the railways of the United States are much safer than is popularly supposed. The statistics indicating the ratio of passengers

TABLE 3.—FATALITIES ON RAILROADS OF UNITED STATES, YEARS
ENDING JUNE 30, 1889, 1899 AND 1909.

	Averages.			Relative.		
	1909	1899	1889	1909	1899	1889
Passengers Killed:						
Due to collision or derailment	86	82	135	64	61	100
At stations, crossings and other causes	163	157	175	93	90	100
Total	249	239	310	80	77	100
Passengers carried one mile (thousands)	29,109,322	14,591,327	11,553,820	252	126	100
Passengers Killed per 100,000,-000 Passenger Miles:						
By collision or derailment..	0.30	0.56	1.17	26	48	100
By other causes.....	0.56	1.08	1.51	37	71	100
Total	0.86	1.64	2.68	32	61	100
Employees Killed:						
Due to collision or derailment	460	334	292	157	114	100
At stations, yards and other causes	1,890	1,876	1,680	112	112	100
Total	2,358	2,210	1,972	120	112	100
Number of employees.....	1,502,823	928,924	704,743	213	132	100
Employees Killed per 1,000 Employees:						
By collision or derailment..	0.31	0.36	0.41	76	88	100
By other causes.....	1.26	2.02	2.39	53	85	100
Total	1.57	2.38	2.80	56	85	100
Trespassers and Others Killed:						
Due to collision or derailment	76	63	66	115	95	100
Struck by trains and other causes	5,737	4,611	3,475	165	133	100
Total	5,813	4,674	3,541	164	132	100
Total train mileage (thousands)	1,112,452	862,258	660,441	168	131	100
Trespassers killed per 1,000,000 train miles.....	5.23	5.42	5.36	98	101	100
Total deaths incident to train movement	8,420	7,123	5,823	145	122	100
Deaths not incident to train movement	302	Not Reported			...	...
Total shown by I. C. C. reports	8,722	7,123	5,823	...	...	...

CHART D



21-12

*The classification "Passengers Killed by Other Causes" refers to the following causes, the figures being for 1909:

Jumping on or off trains, locomotives or cars..... 81

Falling from trains, locomotives or cars..... 37

Struck by trains at stations.... 30

Struck by trains at other points 3

Miscellaneous causes 12

The employees killed due to other causes are as follows:

Coupling or uncoupling cars.... 155

Parting of trains or equipment breaking down 21

Falling from trains, locomotives or cars 347

Jumping on or off trains..... 132

Struck by trains..... 925

Overhead obstructions 52

Miscellaneous causes 266

killed to passengers hauled one mile demonstrate that on the average in 1909 a passenger could travel 4,000 times the distance around the earth without being killed; or, to state the matter another way, he could ride at the rate of 60 miles an hour for 220 years without having a fatal accident. Similarly the figures giving the ratio of the number of employes in service to the number killed show that on the average an employe could work for 637 years before being killed.

As we must all rely on the statistical reports of the Interstate Commerce Commission for our information about the results of operation of the railways as a whole, I wish to call attention to the fact that the comparative summary of railway accidents on page 86 of the Commission's statistics for 1909 is misleading. It is apt to cause the conclusion not only that a great number of persons are hurt on railways, but that there has been a large increase in the number. The number of casualties in 1899 is given as 5,282, and in 1909 as 8,722, an increase of 3,440. But a reference to the report for 1899 will show that in that year no casualties due to such causes as handling freight at stations, accidents in shops, etc., were included. These figures are included in the report for 1909, which accounts for 302 of the increase in deaths. Again, 2,318 of the increase in deaths were those of trespassers and other persons, leaving a net increase of only 820 in passengers and employes killed, or 36 per cent. Meantime there was an increase of 113 per cent in the number of employes and of 152 per cent in the volume of passenger traffic, which shows conclusively that proportionately there was a reduction and not an increase in accidents.

All the dark holes and corners of railroad operation have been explored; the life of timber in cross ties and trestles has been increased from two to four fold; equipment has been improved in design and wonderfully increased in capacity; new locomotive designs to burn the lowest grades of cheap fuels have been perfected; hot boxes, so annoying and productive of delays in past years, have been reduced so that they are practically a thing of the past; the wasteful haul of empty cars has been largely reduced by pooling freight equipment. I might continue this detail almost indefinitely, but I do not wish to weary you.

Do you fully appreciate what the present average rates of 1.92 cents per passenger and 0.76 cents per ton mile mean? The former is a little less than the value of a two-cent postage stamp, yet for

the value of this small stamp the railroad transports a passenger and his luggage one mile, and in addition 3,600 pounds of vehicle to seat him, 650 pounds of vehicle for his luggage and 2,000 pounds of sleeping, dining and parlor equipment for increasing his comfort. For the same tiny stamp the railroad carries $2\frac{3}{4}$ tons of freight one mile and provides and hauls on its passenger trains for the Post Office Department the equivalent of a fully equipped post office on wheels weighing 45 to 50 tons, a distance of about three-quarters of a mile.

Multiplying the saving in rate for each year by the passenger and ton mileage, and adding the products, shows that in the fifteen years \$7,144,343,000 were saved to the public in transportation charges. Some conception of this amount may be formed by considering that it means an average saving per day over the entire period of a little over thirteen hundred thousand dollars, and that for the year 1909 it means a saving to the public of \$2,760,000 every twenty-four hours, and fully justifies Commissioner Lane's high tribute to the American Railroad for its wonderful efficiency.

EFFICIENCY AS THE EMPLOYE SEES IT

BY WARREN S. STONE.

(Grand Chief Brotherhood of Locomotive Engineers. Eleventh Annual Meeting, National Civic Federation.)

I am a graduate of the school of hard knocks—twenty-three years of my life have been spent in the cab of a locomotive, and I at least think I know whereof I speak.

The so-called efficiency system which is attracting our attention at the present time is nothing new. In some form or other, under various guises, and by different names, it has always confronted the worker through the past centuries. The railroad organizations have it under the merit system, and they have it under the so-called bonus system, and every labor organization has it to contend with in some form or other.

For fear you may think the other speakers have the word efficiency copyrighted, I desire to inform you that the Brotherhood of Locomotive Engineers has always stood for efficiency and always expects to. The record of the organization throughout the forty-seven years of its existence proves that, and this statement will be corroborated by any railroad management. The Brotherhood of Locomotive Engineers is opposed bitterly to the so-called bonus system, and stands ready to fight it at any time at any stage of the game. But you say, "Oh, well! this is simply a fight between labor organizations and the employers, and the public at large are not concerned in this at all." There is where you are mistaken; you are vitally concerned in it, far more than I can possibly be, and I am going to show why you are.

The theory of a bonus system is a beautiful one. It reminds me very much of a map made to illustrate the theory of a western railroad capitalist, who conceived the idea that land increased in value in a ratio with the increase in population. He figured it all out and drew a beautiful diagram, showing the percentage increase in population and the proportionate increase in land values, and by his beautiful curves and figures proved beyond a doubt that in the year 1890 land in western Nebraska would be worth so much per acre, and he and his friends invested all their money, expecting to be millionaires. The year 1890 came, but no millions; there was no

increase in their land values; in drawing his diagram he left out one thing: He forgot that it did not rain in western Nebraska, and the result was, he and his friends lost their money. Most of these theories leave out some important thing; the theory is beautiful, but when put into practice, the hard, every-day wear develops the weak spot—in the case quoted they left out the rain.

One of our western railroads put in a so-called bonus system and spent thousands of dollars in an attempt to make it become effective with the locomotive engineers (they already had it in their shops). The men tried it for a few months until it demonstrated its value and its good and bad qualities, and then said they did not want it, and would not have it, and, after a conference, the management withdrew it from being applied to the men engaged in transportation service. It is still in effect in the shops and engine houses; everyone is paid a bonus, from helper to master mechanic. We do not believe in the bonus system, and I want to tell you why. A man in the shop works on a certain job; if he can do it in the maximum time set for the job, all well and good; if he does it in so much shorter time, he gets so much bonus.

I am a practical engineer, having had, as I stated in the beginning, twenty-three years' experience in the cab of a locomotive, and know of the thousand and one things an engineer has to contend with in taking a limited train over the road at break-neck speed. The danger is always present, and under the most favorable conditions always stares the engineer in the face. Picture that engineer out on the road with a limited train, every nerve keyed up to the highest possible tension, every sense alert, the one cool, keen-eyed, wide awake man in the cab pitting his skill and watchfulness against the dangers that confront him in his every-day struggle to bring the limited train in on time. A joint on steam chest or cylinder gives way, or the packing on a valve stem or piston blows out. At once he is riding in a cloud of steam that blows back and forth, windows are instantly coated over, and, with his head out of the window, and the wind cutting like a knife, he is trying to distinguish the signals. A failure on his part to catch every signal, or his failure to catch the position of one, spells the difference between safety and disaster to the hundreds of passengers sleeping in safety behind him; the danger to all has been increased a hundred-fold. The engineer arrives at his terminal and reports the necessary repairs. The workman who makes the repairs is working under the bonus sys-

tem. To do the job right would probably require one hour, but if he can finish it in forty-five minutes he gets a bonus for his efficiency, when he is in reality slighting the work and doing an inferior job. The result is, the engineer goes out the next trip supposing the work has been done properly. He has a right to believe it has, and does not get twenty miles down the line until it again blows out, and again he is riding in the blinding cloud of steam, and, while flying along at a mile-a-minute clip, he gets by a flagman beside the track or by a signal; result, another wreck, with its attendant loss of property and often loss of many lives. Headlines in the paper next morning, "Many People Killed and Injured on Account of an Engineer Disregarding Signal Displayed." The papers do not give the cause why the engineer failed to see it, and the engineer is perhaps dead and cannot explain that his life was sacrificed on account of the bonus system. If it was only the engineer who was hurt or killed, you would not be concerned, but in many cases he takes many of the passengers with him. It is of vital interest to you, to every one who travels on a railroad train. This is no overdrawn picture, but is something that actually occurs. But, you say, this was never the intent of the bonus system. It is not the theory we are quarreling with, but the results obtained from the actual, every-day application of the system. On the road where it was in effect, it was proved beyond dispute that one piston-rod was packed for seven consecutive trips, and the machinist paid a bonus each time, before the job was finally done so it held; in other words, before it was done right.

No one would think of hiring a man to drive rivets by the hundred on a steel skyscraper. No contractor, no matter how reckless, would dare think of such a thing. You demand that the workman do it by the day with the very best skill possible. The steam locomotive is subjected to more strain and more demanded of it under varied conditions than any other class of machinery. The fatality of engineers is bad enough under the most favorable conditions. We paid for two hundred and ten men killed on duty during the year just closed. We have a right to demand the very best material and workmanship possible. We don't want piece work, and we don't want the bonus system with its attendant incentive for some man to slight his job. It is something of vital importance to you as well as to me. And, for the reasons given, the Brotherhood of Locomotive Engineers is opposed, first, last, and

all the time, to the bonus system. I can also cite you where the bonus system is applied to the clerical force in a large office. Each employe has a certain fixed amount of work as a maximum day; all over and above that they are paid bonus for. If the employe earning the bonus received it, it probably would not be so bad, but such is not the case. The chief clerk in charge of the department gets 40 per cent, the employe actually doing the work gets 60 per cent of the bonus earned. The result is, each employe speeded up to the highest possible tension; each employe crowded to the limit; same old system of slave-driving under another name. Take the recent disclosures in the Havemeyer sugar frauds, all that stealing was done for one thing—to enable the man in charge to reduce cost of operation.

Human nature is much the same the world over, regardless of whether the man is an employer or an employe. The result is, in any system of bonus, merit, or premium—call it what you will—there is always some one who will not play the game square. I know one man who carried the banner for over a year for fuel economy. It was finally learned that a pint bottle of whiskey twice a month to the man in charge of the coal shutes made it possible for him each time he took coal to get eight tons and only pay for four. Another man received the premium for two years on economy of lubricating oils. It afterward developed it had cost him one dollar per month to the man in charge of the oil room. But you say, "That was the man, not the system." It was the direct result of the premium system.

In all these theories, the merit, efficiency, and bonus systems you have one unfortunate thing to contend with: The Supreme Power when He created man did not make all in the same mould, with the same powers. Each individual differs from the other, and the time will never come when every man will become a machine guaranteed to turn out so much work each day. Those who hope for so much from the so-called efficiency system all recognize the fact that some time in the future with their system each man will have to reach his limit, the maximum output, and will earn no more bonus. Another thing, none of the men who advocate these beautiful theories of each man being 100 per cent efficient tells us what is to become of the man who is unable to reach that point and never will be 100 per cent efficient. Who is to take care of these men we throw on the scrap pile of our commercial industry?

The labor union is not opposed to the efficiency of its members. There is nothing in this talk about the labor union keeping down the individual workman. The American workman is the peer of any other workman in the world. It is true he lives better and has many privileges that workmen in other countries do not enjoy. It is also true that his output is better than any other workman in the world. This is an era of progress, and this talk about the individual workman making an individual contract with his employer in accordance with his efficiency is the rankest kind of nonsense. Perhaps, in the days of the old regime, when an employer used the labor of only a few workmen, it might have been possible, for then the workman worked side by side with his employer, and often formed part of his household, and then the employer was in close personal touch with each employe. Today the employer uses thousands of workmen, and does not know who the employe is. He merely represents one cog in the machine, and one number on the payroll, and when you talk about that man getting in as an individual employe to make his bargaining, he has about as much chance as he would getting into heaven by climbing up the fire-escape. If he did succeed in getting in once, he certainly would not a second time.

Recently the papers were filled with the statements made by a new star that had arisen in the labor world. "The railroads can save a million dollars a day;" think of it! 365 millions a year. When a man comes forward with such a startling statement as that made by Mr. Brandeis, we commence to look around and ask questions we have a right to ask. Did he ever manage a railroad? No; he never did. Place him in the general manager's chair in charge of one of these great railway systems and he would be lost. You would have to put a bell on him to find him. Did he ever design a locomotive or draft one? No; he never did. Did he ever shovel any coal into one? No; he never did. I have. I have shoveled more coal into locomotives than you could pile on a city block. Mr. Brandeis has had no practical experience, and knows nothing about the subject, yet only yesterday he stated we could save \$500,000 a day on fuel alone. No railroad at the present time is throwing away a dollar, and, regardless of Mr. Brandeis' statements to the contrary, the American railroads are the best managed of any in the world. The men in charge of these great systems stand head and shoulders above the railroad men of the world.

There is no other class of business that is operated on so close a margin; no other business where the details are watched so closely as on the average railroad. And yet, Mr. Brandeis says they can save 365 millions a year. He must have got that fairy-tale out of some story-book. But who is Mr. Brandeis? "Who's Who in America" states that he is a very able, highly accomplished attorney of Boston. A short time ago the daily press announced that he, having acquired enough of this world's goods, would devote his future time and ability in philanthropic work, would give his talents and service, free of charge, to help the down-trodden and oppressed. Next thing we heard he was in Washington filing a brief in behalf of the Shippers' Association, protesting against an increase in freight rates; perhaps he thought they were the oppressed. Before any association or individual brings a case before the bar of public opinion and expects their support, they should at least come with clean hands. The individual shippers of the country are the very ones who reaped the benefits of all rebates ever given and caused the present drastic laws for the regulation of interstate traffic to be enacted.

In the end, who pays the freight? The most superficial study of the question will prove to anyone that the consumer pays the freight. The shipper does not pay a dollar of the freight; he is simply a parasite who lives off the consumer and the producer, one of the middlemen who take their toll and increase the cost of living.

Let us look further into Mr. Brandeis. Did he ever have anything to do with labor organizations or the work of laboring men? I find he was consulting attorney for several big manufacturing concerns in the East; one big department store; a big shoe factory. and a few others, but only as consulting attorney. I believe the department store, at the time he was counsel, evolved a very ingenious plan, which they misnamed "welfare work." There was not any welfare work about it. They said they would pay each employe so much on all sales made over and above a certain amount; would pay a commission on that, and then they declared to the world they had a new scheme of welfare work. It is a splendid advertisement. If I were going to sell goods, it is a good scheme, but "welfare work" is a misnomer. Anybody will work like the devil when they are down to starvation and try to sell goods to increase profits; that is natural, and, because an employe

only got seven dollars a week to start with, and the rest in commission, of course they had to work.

Many of these employes were women. Why is it in all this talk about efficiency we hear nothing about the wages of the women who do the work of two men oftentimes, and because she is a woman is paid one-half the wages paid to a man for the same work? A woman is just as much entitled to the same compensation for the same labor performed as any man, but that is getting away from the subject.

I believe that the masters of finance, such as represented by Mr. Morgan and others, are absolutely right when they say they have reached the limit of economy in railroad operation. I don't believe it is possible to do any more along that line, and I agree with them that anything in the future toward improvement will have to be by addition or increase to freight rates. There never was a time in history of the railroads when so much was demanded as now. There never was a time when so much was demanded along the line of fast traffic, high speed, splendid roadbeds and a thousand and one other things, and there never was a time when the railroads were in need of more money to make improvements, build terminals and other things needed as now, and the only hope for them is in an increased freight rate. What is the result? Today in this country everybody is waiting to see what the Interstate Commerce Commission is going to do in regard to freight rates; business is practically at a standstill; there is a wave of uncertainty in the air; you may say it is all due to the wage movement. It is true we have had increase of wages throughout the country; but that doesn't begin to compensate for the increase in the cost of living during the same time and the same period. The increased cost of wages is not what is causing the increased cost of living at the present time. Every other commodity has had to increase prices except the railroads; everything they had is going up, not only labor, but everything else, and everything the railroads have to sell is going down, and unless there is a change of public opinion in the near future, some of the best managed railroads today will have all they can do to keep their heads above water, and they haven't the money and can't get it for the needed improvements they have to make.

In conclusion, I wish to state the labor unions have come to stay. In some form or other they will have to be reckoned with in the future, but the labor unions are not clogging the wheels of progress.

The labor union I represent stands for efficiency. The efficiency of the employe has been doubled in the last ten years. One man today is doing the work two men did ten years ago. The engineer is pulling twice as much tonnage as he did ten years ago. The organization did not fight that; if they had not stood for efficiency they probably would.

We are opposed to any system that cheapens the quality of work and increases the risk, and stand ready to fight it at any time, whether it be Mr. Brandeis' plan (which, in plain language, means discharge one-third of the employes and make the other two-thirds do the work), or any other plan that means going back seventy-five years to the days of individual bargaining.

In closing, I desire to read you a poem recently printed in a Boston paper, because I know you will enjoy it.

THE PEDAGOGUE.

The teacher laid his green bag down
Gazed o'er his glasses' rim;
In awe of learning's dazzling crown
The class gazed back at him.

With shining face, clean pinafore,
Neat brushed each graying beard,
They one and all looked straight before
At him, revered and feared.

All bright and studious boys were they,
Who quickly understood,
Jim Hill, Dan Willard, Jim McCrea,
Ted Shonts, Fred Underwood,

Bob Lovett, Charlie Mellen there,
Ned Hawley next row down,
Jim Harahan and Georgie Baer,
Ed Ripley, Willie Brown.

The teacher put them at their ease
With condescension mild—
"I'm sure that problems such as these
Won't bother any child.

"Arithmetic we'll briefly try:
What must a railroad do,
When costs and wages both are high,
To guard its revenue?"

"Raise rates!" the class in chorus yell,
"Nay, not at all," cries he;
"Just use my formula, and swell
Two dollars into three.

"Expense plus waste two millions net;
The second strike away;
Fifty per cent, the more you get,
A million dollars a day!

"The proof? It needs no learned lore,
'Tis clear from laying bricks,
A man who used to lay but four
Today is laying six.

"And piling iron—see the scales
When proper skill you use;
And buying things at bargain sales
And packing boots and shoes.

"A simple thing, when thus made clear,
By one who's skilled to teach."
The class, in admiration sheer,
Are past the power of speech.

Oft have they seen magicians bland
Take rabbits from a hat
Or eggs from mouth with nimble hand,
And other stunts like that;

But this beats all they ever saw—
Well may they gasp and stare
When shown how they may daily draw
A million from the air!

ARBITRATION OF RAILWAY LABOR DISPUTES

BY F. O. MELCHER,

The Late Second Vice President Rock Island Lines.

We must remember that there are three parties to every controversy; two contending parties, and the public. We must remember, also, that there are three features which must enter into the adjustment of every dispute; first, some effort, in an informal way, to reconcile differences or draw the contending parties more closely together; second—in case of failure to secure settlement by conciliatory methods—an arrangement by which the differences will be submitted to arbitration; and, third, a complete understanding on the part of the public as to the merits of the controversy.

The public is entitled to have the information necessary to enable it to place the responsibility for failure to reach the settlement of a dispute which may result in interruption of a service so essential to its convenience and business prosperity as that of transportation.

A large majority of the disagreements which have occurred in negotiations regarding railway labor matters recently have been settled either through mediation and conciliation, as provided for in the Erdmann act; or by arbitration thereunder; or by some other form of arbitration agreed upon between the railways and the labor organizations.

Before suggesting improvements in methods that have been tried in the past, we should consider the results obtained by and the defects in those methods. The processes we have used have been well tried and we should not make radical departures therefrom without mature consideration. This leads up to consideration particularly of the Erdmann act.

The strength of the Erdmann act consists in the fact that it does not contemplate compulsory arbitration. Compulsory arbitration must be distasteful to both the railways and the employes, as doubtless there are many issues which neither would care to arbitrate.

The spirit of conciliation and mediation injected in the steps preliminary to settling a controversy or bringing about arbitration is another strong feature of the act. The situation at this stage would be improved if the law compelled the parties in dispute to desist

from open hostilities until the matter in controversy has been carefully investigated and the facts definitely ascertained and placed before the public.

The statement that arbitration is desired by the weaker side is not quite true. The Erdmann act encourages the generous party, mindful of public interest, to arbitrate and settle its troubles without an interruption of service; but, at the same time, the Erdmann act may at times encourage weak negotiators to shirk responsibility.

The act might be strengthened by making it mandatory upon the chairman of the Interstate Commerce Commission, the commissioner of labor, or such officers as may be charged with such responsibility, to place themselves in communication with the parties to the controversy, and endeavor by mediation and conciliation to secure an adjustment of the controversy, or an arbitration of the points of difference.

The act should be broadened sufficiently to include the railway mechanical branches which are so closely associated with the transportation department. As at present framed it covers only controversies between railways and their employes *actually engaged in train operation and train service*. While it is obvious that trains cannot be operated without providing for the handling of engines and cars in shops and roundhouses, the act is not clearly and certainly broad enough to include car repairers, boilermakers, machinists and others of this class, and although it might be so interpreted it should be made somewhat more specific.

Under the present method both sides select their most efficient representatives. These two generally fail to agree upon a third man, and thus force the appointment of an "umpire." The third arbitrator is always a man of high principles, who accepts the service purely from a feeling of public duty, but who may not be properly equipped by experience or training to understand the problem in all of its intricate details. He may be misled as to the importance of what are apparently trivial details; or he may avoid the responsibility of a clean cut declaration of principles by a decision largely a compromise and based generally on purely monetary considerations.

For the above reasons it would seem possible to improve the situation. A permanent court would permit of security in tenure of office; of the selection of experienced men, well equipped by

special training, free from other duties and with sufficient opportunity for a study of the whole broad question; and of the elimination of political influence. Such a court would seem to be a practicable arrangement from the standpoint of the work which might be thrown upon it; for with the opportunities for breaches between the roads and the employes restricted by concerted action, and actual disagreements still further reduced by the preliminary processes of mediation and arbitration, it is probable that no more cases numerically would be presented than could be handled with reasonable promptness.

The suggestion for a permanent court of arbitration appears attractive from the standpoint of increasing the possibility for judicial and careful analysis of the whole situation. It is questionable if either side would assent to an arrangement contemplating a permanent court composed always of the same individuals. A permanent court, having once decided against a party to a controversy, might not again be acceptable to that same party; whereas, an arrangement by which the personnel of the court or board of arbitration could be changed would remove this objection; and doubtless a party would again be willing to submit its further case to arbitration.

It is not obligatory to take controversies to a court of law. Compulsory arbitration of labor disputes certainly appears inexpedient and is an impracticable suggestion; and it is therefore evident that we must turn to some arrangement compelling the parties to a controversy to desist from open hostilities until the facts are made public.

As a suggestion, the law might be amended to provide that the President of the United States shall, when a controversy arises, which, in his judgment, threatens to interrupt the public service, investigate the causes through a special commission. This special commission should be required to hear the case, enter upon and inspect the premises involved, utilizing experts to examine accounts, books or official reports, or anything material to the investigation. After such investigation the special commission should be required to formulate a report setting forth the causes of the controversy; locate as far as possible the responsibility, and make recommendations for ending the disturbance and for the prevention of a recurrence thereof. This report should be transmitted to the President and the public.

By this process a thorough and impartial investigation of the cause of the controversy and all the facts concerning it could be brought to the attention of the public, which is so vitally interested in the issue.

To summarize, the Erdmann act might be amended to require a member of the Interstate Commerce Commission and the Commissioner of Labor to put themselves in communication with the contending parties and endeavor by mediation and conciliation to bring about an adjustment of the controversy; and, failing therein, to acquaint the President with the situation, hostilities to be suspended until a commission could be appointed to investigate the subject and prepare a report as outlined above. A thorough investigation and public report would in themselves create a public opinion which neither side might care to disregard. It would provide the only compulsory feature which would be practicable to inject into such proceedings under the present conditions.

LAWS OF 1911 AFFECTING RAILROADS

(From Bulletin No. 97, Bureau of Labor.)

Laws enacted for the benefit of railway employees or the regulation of the conditions of their employment are quite numerous in 1911 and relate to several phases of the subject. The qualifications of certain employees are considered in four states; one of Massachusetts (ch. 539) requiring that locomotive engineers shall have had two years' experience as firemen or engineers' helpers, and that conductors shall have served two years as brakemen or have had previous experience as conductors on railway trains. In Michigan (act No. 187) freight engineers must have served three years as firemen, and passenger engineers must have had two years' experience as freight engineers. Conductors on freight trains must have served two years as brakemen, or conductors, while passenger conductors must have had one year's experience as conductor of either a freight or passenger train. Telegraph operators must be at least 19 years of age and have had 30 days training under an experienced operator. No one is to act as flagman until after three months' experience as a brakeman. The Indiana law (ch. 233) relates to section gangs, and requires that at least two men in each gang shall be able to pass an examination in the flagging rules of the road. In Idaho (ch. 161) conductors, engineers, firemen, brakemen, switchmen, or other employees who may act as flagmen, must be able to read, write, and speak the English language. The matter of protection for railroad employees is the subject of a law of Indiana (ch. 261), which makes it a misdemeanor for anyone to prefer false charges without probable cause against any employee of a railroad to the effect that he has accepted anything of value for the transportation of persons or goods or has failed to account for money received.

The subject of an adequate working force for railroad trains was considered in several laws prescribing a minimum crew for trains of certain composition with prescribed additional employees on trains having a greater number of cars. On passenger trains the minimum crew prescribed by these laws consists of four men, the Nevada law requiring this number on a train of two cars or less, while in other states this is considered a sufficient crew for three

to five cars, though the Pennsylvania law requires six men when four or more cars are used in a passenger train. The States enacting new or amending laws on this subject in 1911 are California (ch. 49), Nevada (ch. 94), Ohio (p. 508), Pennsylvania (p. 1053), and Washington (ch. 134). Some of these laws relate to freight trains as well as to passenger trains, and that of California prescribes the qualifications for service, which are practically the same as those noted above. The Pennsylvania statute directs that the rear car of a mail or express train shall have a rear exit, platforms, guard rails, and adequate provisions for heating. A statute of Indiana (ch. 74), prescribes the composition of the minimum switching crew, the same to consist of five workmen, as follows: Engineer, fireman, foreman and two helpers. These are to engage in no other duties while the engine is switching cars, and the foreman and one helper are required to have had one year's experience as switch conductors or brakemen.

The construction of caboose cars, their dimensions, and their equipment are made the subject of legislative action in Arkansas (Act No. 418), Indiana (ch. 60), Iowa (ch. 93), Missouri (p. 157), Nebraska (ch. 88), North Dakota (ch. 245), and South Dakota (ch. 208). These laws are practically uniform and fix the minimum length at 24 feet (28 feet in Missouri), with two four-wheel trucks. Platforms, guard rails, grab irons, steps, cupolas, closets, and windows, and other details are regulated by these laws. New caboose cars are to conform with these specifications, and when old cars are brought in for general repairs they must be made to conform before being taken out for subsequent use. A Federal statute that may be considered in this connection is one (ch. 241), that directs that railway postoffice cars shall be sound and sanitary, and that after July 1, 1911, wooden cars shall conform to an approved type and not be run between steel cars or between steel cars and the locomotive. After July 1, 1916, post-office cars are to be of steel or have steel underframes.

The operation of trains by the block signal system is contemplated in statutes of Indiana (ch. 188), directing the use of an automatic block or other system approved by the state railroad commission on steam and electric lines operating single cars as well as trains; Minnesota (ch. 322), requiring that proposed installations of safety appliances be of a type approved by the State Railroad and Warehouse Commission and be submitted to inspection

before use; and Wisconsin (ch. 297), requiring the installation of adequate safety devices and authorizing the need of a block system or other safety device and to order its adoption, and establish reasonable rules for the installation, operation and maintenance of the same. The Federal Congress (ch. 285), appropriated \$25,000 to enable the Interstate Commerce Commission to make investigations as to the use of block signal systems and appliances for the automatic control of trains, and as to the necessity for the adoption of such devices.

A variety of safety appliances were considered in other laws, an act of the Arkansas Legislature (No. 261), requiring frogs and guard rails to be blocked so as to keep the feet of employees from catching therein; another law of this state (Act No. 23), requires switch lights to be maintained on railroads operating during the night time. An Oregon statute (ch. 219), requires the blocking of frogs, switches, and guard rails, and directs that flagmen shall be able to read, write and speak the English language and be at least 21 years of age. An Indiana statute (ch. 169), amends Chapter 118 of the Acts of 1907 on this subject by requiring hand brakes to be installed on both electric and steam trains, and fixing the distance of structure adjacent to the track at 7 feet from the center thereof, instead of making the measurement from the nearest point of contact with the widest locomotive or car used. This law makes it an offense to injure or interfere with any safety device on railways. The railroad commission of South Carolina (Act No. 103), is authorized to require the installation of any safety device which in their judgment would be of material aid for the protection of train crews or of the public. Another law of Indiana (ch. 202), regulates the height and size of poles carrying electric feed wires, transmission wires, or other high-voltage wires over tracts of electric or steam roads, or over the trolley or telegraph wires connected with such roads.

The protection of repairmen from the inclemency of the weather is considered by statutes of Oregon (ch. 39), and Texas (ch. 6, fourth called session, 31st legislature), which direct that if five or more repairmen besides inspectors are employed at any point, shelters shall be constructed over the repair tracks for their benefit.

The capacity of locomotive headlights is regulated by four statutes, one of Florida (ch. 6234), requiring 2,500 candle power

on freight and passenger locomotives, and one of South Dakota (ch. 213), a 1,500 candle power, while the acts of Kansas (ch. 241), and Wisconsin (ch. 29), direct that the light shall be of sufficient power to show the form of a man at a distance of 800 feet on a normal night.

The matter of inspection is considered in laws of Indiana (ch. 56), directing the railroad commission to appoint a locomotive boiler inspector who is authorized to inspect any locomotive boiler at any reasonable time or times at the direction of the commission, and prescribing the equipment of locomotive boilers; Texas (ch. 63), requiring air brakes and attachments to be tested at division terminals by an inspector of three years' experience; Vermont (Act No. 149, Acts of 1910), authorizing the public service commission to make rules and fix tests for locomotive boilers used by railroads or others, directing such test to be made by the master mechanic of the company, who is to report to the commission; and by a Federal statute (ch. 103), which authorizes the President to appoint a chief inspector and two assistant chief locomotive boiler inspectors. The chief inspector is to divide the United States into fifty districts, for each of which an inspector is to be appointed from a list secured by examination conducted by the Civil Service Commission, using questions furnished by the chief inspector. Appointments are to be made by the Interstate Commerce Commission and the employees are to remain under the classified service of the United States. It is the duty of inspectors to inspect all locomotive boilers in their districts and give notice of defects. Boilers are not to be used until such defects are made good. Accidents caused by defects are to be reported by the railroad to the chief inspector to be investigated by him or one of his assistants or by such inspector as he may designate. The Interstate Commerce Commission may ask for a report of such investigation. A law of Connecticut (ch. 128), authorizes the public utilities commission of that state to make inspections and order changes. Any person having knowledge of defects may make complaint and inspection is to follow, the complainant being informed of the conclusions. The name of the complainant is not to be disclosed. Railroad companies are to report accidents, which the commission is to investigate, recording its conclusions and recommendations in a book that is to be open to the public.

Several matters are considered in the law of Washington (ch. 117), prescribing that telegraph and telephone companies shall have buildings and conveniences for the accommodation of patrons and employees; directing all public-service corporations to give notice of accidents, which notice may be admitted as evidence in any suit against them; authorizing the public-service commission of the State to make investigations and order repairs and changes, from which orders no appeal is allowed; and prescribing the equipment of locomotives with power driving wheel brakes, automatic couplers, steps, grab irons, footboards, and headlights. Cars are to have automatic couplers, brakes, etc. The equipment of street railway cars is also prescribed, brakes, grab irons, steps, and fenders being necessary to meet the provisions of the law. Frogs are to be blocked, inspection is provided for, and penalties fixed for violations of the law.

PUBLIC OPINION—ITS EFFECT ON BUSINESS

BY HOWARD ELLIOTT,

President of the Northern Pacific Railway.

Address Before the Publicity Club of Minneapolis.

In the preface to his friendly volume, "The United States in the Twentieth Century," M. Pierre Leroy-Beaulieu, one of the keenest of foreign observers of conditions in the United States, and a noted economist, uses this striking language:

"Moral worth, which includes the recognition of duties as well as of rights, self-respect and respect for one's fellows, has contributed fully as much as the magnificent resources of their country, to the brilliant success of the American people. Of the qualities that have co-operated to elevate them so rapidly to such a commanding position, the most impressive is a great, a tireless energy.

"Now that the obstacles raised by Nature have been overcome, now that the country is already so wealthy that the individual cannot always hope to see his efforts as richly compensated as was formerly the case; there is danger that this precious quality may be to some degree lost.

"It seems to me that the first care of the Americans should be to maintain it in all its integrity. The essential condition to the development of energy is liberty. Every restriction on liberty, with however good purpose, diminishes the individual responsibility and initiative. Yet we often hear mooted in America, as elsewhere, measures which under the pretext of correcting abuses, would immeasurably extend the State's field of action, and reduce the liberty of citizens. It is my earnest hope that the American democracy will reject such enervating proposals, and will remain true to the virile and liberal traditions that have ensured the United States so wonderful a growth."

In these short paragraphs a foreign observer and admirer has placed his finger on one danger that threatens the American people today, viz: The tendency to take away by *law* the freedom of action of the individual and to attempt to shift upon numerous and often half digested laws, burdens that the individual should carry himself, and to try to solve problems by law that public opinion should settle

—based on a few of the great fundamental laws of life that no legislature or commission can change.

M. Leroy-Beaulieu is right in declaring that a tireless energy characterizes the American people, and the economic progress of the country has been so rapid as to astonish foreign students of American social and business conditions. It has wrought great changes in our methods of business and of living. The average American enjoys luxuries and conveniences which were not dreamed of even twenty-five years ago, and the inventive genius of Americans is daily placing in the hands of every man, new and improved tools with which to do his work.

Our prosperity has increased the complications of government, and the close attention given by our people to business has resulted in less personal attention to public affairs, and there is not the feeling of interest and responsibility about them that characterized the American people when they were fewer people and less wealth.

The average American must realize that with a more complex civilization and government the duties that devolve upon him individually are more important than before. He must take a broader and better view. He must not consider the law a crutch to take the place of a direct and personal responsibility that our system of government places upon him. He should realize that he is one of many who make government in this country and determine whether it shall be lax or efficient. The law is only the expression of the sound public opinion of many individuals.

During a hundred years Americans have taken a pride in the extent of the country, in its great natural wealth and resources, in the development of their country, and in the large machinery of business and industry that has grown up under their hands. We have been proud that we are big; so much so that we have exposed ourselves sometimes to the smiles of foreigners, who have thought us boastful.

It is related that a French business man accepted the invitation of a prominent man of that city, to visit Chicago. The two started from New York and began to talk about the rapid development of the country, and the visitor remarked:

"You Americans are a boastful people. I will wager a sum of money that before we have been in Chicago thirty minutes, at least two of your fellow citizens will have proven it to me."

The wager was made. Upon alighting from the train the Chicago man met a friend and introduced his guest. Almost in a breath the friend saluted the French visitor, and urged him to visit the stock-yards at once, because "they are the largest in the world!" Fifteen minutes later at a club, the Frenchman won his wager, when a prominent merchant invited him to tour the business district in an auto and see the "greatest commercial center in the world!"

Such pride is natural in a people who have done great things in a short period of years. Our commerce is great and our trade extends to the corners of the earth—the product of a hundred years. Our transportation system, with a capitalization which is the lowest in any civilized country in the world, with the lowest rates, and with the highest efficiency of service and ability to meet the demands of business, is second to none. An elaborate system of public education has been built up, and is aided by many universities and schools created by private gifts, which rank with the best institutions of learning in other countries. In the common things of life, corresponding progress has been made, the average American lives better, profits more from his labor, and has greater opportunities of advancement than the people of any other country.

In all this wonderful progress, there is one weakness which many Americans realize. Our progress has been largely material, and public opinion has been busy with purely material things. In transportation, business, invention and the spread of learning, our achievements are equal to or superior to those in foreign countries. What we have done in 100 years is due largely to the tireless energy, individual responsibility and initiative spoken of by M. Leroy-Beaulieu. If we turn to our national life, the welfare of which is dependent upon the degree of personal responsibility felt by the average citizen, a less favorable result comes to our attention. There are defects of political and governmental machinery which are apparent to everyone. Efforts toward better standards are made, yet there are still preserved in the methods of government in most of the cities of the land, customs and practices which are not thorough, efficient and economical or equal to the methods insisted upon in ordinary business. In private business affairs the progress toward genuine efficiency is more rapid than in either National, State or Municipal Government. This may be attributed to the lack of a vigorous public opinion insisting that a man in the service of the

public shall work just as long and as hard as the man in private business.

PUBLIC DUTY.

The American people are divided in their views about present conditions. The ultra-conservative are content to watch their income grow with not much thought of public duty. The sentimentalists and the radicals, actuated more by the heart and self-interest than by reason, declare that all things are wrong and that we must tear down and begin over again, introducing doubtful principles and ideas often obsolete and unpractical.

It is probable that the true view is between these extremes—that there is sound public opinion in this country, but that it is not making itself felt as it should, because the pressure of material things and personal interest prevents proper expression of it. Society as a whole needs a stronger sense of personal responsibility, creating a foundation upon which a really sensible and constructive public opinion may be built.

Few people realize the number of men in this country entitled to vote who fail to do so.

In 1900 there were in the United States males of voting age—or potential voters—21,329,819; and there would be some increase each succeeding year, and yet the vote for President was

in 1896	13,827,212
1900	13,970,134
1904	13,524,349
1908	14,887,133, or about 35% not voting.

The 1910 census and the official voting returns tell the story locally.

	Voting Population	Votes Cast Last Election	Per Cent. Not Voting
Minnesota	642,531	310,165	51.7
Minneapolis	105,286	43,903	58.3
St. Paul	72,041	29,499	59.1
North Dakota	173,885	94,084	45.9
Fargo	4,769	2,416	49.3
Grand Forks	4,036	1,854	54.1
Bismarck	1,988	890	55.2

Certainly not a good showing of interest. Public opinion should arouse people to take more interest in selecting the men who are to make and administer the laws that affect their daily lives in many directions.

TOO MANY LAWS.

One result of this indifference and neglect is that there is a class described generally as "politicians" who make the laws—and make too many of them. That is their business, and the more elaborate the governmental machinery and the more laws to be made and unmade, the better for the "politician" and his friends who are living at the expense of the rest of us because we are too busy to express our real views about matters of grave importance.

The disposition to try to adjust everything by passing laws is nowhere more strikingly shown than in the number of laws introduced into Congress. While the largest number of proposed enactments submitted to any American Congress, during the ten year period ending in 1909, was at the sixtieth session, when 38,388 bills were introduced, the more deliberate and careful methods of the English are shown in the fact that the largest number of bills before any Parliament in that period, that of 1900, was only 621. Less than 2 per cent. of the bills before the sixtieth Congress became law, while 67 per cent. of the bills proposed in Parliament in 1900 were enacted.

During this ten year period, our National Senate and House considered 146,471 different bills. During the same period the English Parliament considered but 6,251 measures. The Congressional "mill" added 15,782 measures to the law of the land; Parliament enacted but 3,822 new laws. The figures in both instances include both public and private bills, and it should be added that Parliament considers and acts upon many subjects which are considered by State and municipal bodies in the United States.

The State Legislatures for 1911 considered as a part of new railroad legislation proposed, a total of 512 bills, affecting physical operation of railroads. These proposed bills related to hours of service, terms of employment, the kind of uniforms to be worn and other matters affecting employes, compulsory and voluntary arbitration, train rules, regulations for the operation of freight and passenger trains, equipment, car supply and claims, signals, clearances, crossings, maintenance of tracks, and many details which it would be supposed that the long experience and extensive knowledge of railroad managers under the varying conditions of business would be a better guide, than the judgment of a legislative body, no matter how excellent its intentions.

In the seven States in which the Northern Pacific Railway has its lines, the legislatures considered a total of 230 railroad bills about matters that can be settled much better by the friction and evolution of business.

Legislation that is a response to a real public opinion should not be objected to by any conscientious citizen. Such laws, backed by the will of the people, will be enforced. But the deluge of new laws that is dumped upon the country has the effect of weakening respect for the law, because too many laws prove unwise in practice, and are not enforced, with the result that too many people grow up with a lack of respect for law and order and do not *obey* promptly those who have the right to give orders.

RAILROAD ACCIDENTS.

There is a very proper concern because of railroad accidents and no one is concerned about them more than the railway owner and manager; they have the greatest incentives of anyone to avoid them—pride in their profession; the natural desire of all men to prevent sorrow and suffering; the loss of money and reputation.

And yet most accidents are due to three fundamental causes—*disobedience* by some one of a rule that if followed would have prevented the accident; *negligence* of some individual somewhere in doing his particular work, making the car wheel, or rail, laying the track, inspecting the track, throwing the signal, etc.; *recklessness* among passengers and employees.

This disobedience, negligence and recklessness cannot be eliminated by law, but public opinion can have a marked effect upon it.

The lack of public opinion of sufficient weight to compel the enforcement of many of the laws passed in the United States, is one of the causes of our homicides. Every day of the year murders are committed somewhere in the United States. Many have tried to point out the reason. It is probable that several factors rather than one are responsible, and that they may be summed up in the laxity of public opinion, and the consequent laxity of law and its administration. For this death roll, every individual of the American people should feel a responsibility. It is the lack of such public opinion that caused the Indiana Railroad Commission to make this sad comment in its accident bulletin issued in March, 1910:

“Trespassers continue to pay the usual toll in blood for the fatal right to make thoroughfares of the railroads. If the railroad

ties were three times as many, and were saturated with oil and burning all the time; if dynamite were placed on the track every ten feet, and people walked on the tracks, nevertheless the deaths would be no more certain than in a country whose laws do not prohibit such use of the tracks, and whose customs and carelessness of human life permit these astounding fatalities."

From 1901 to 1911, 50,708 persons lost their lives by "walking on the railroad tracks"—taking chances of death that were obvious. Add 54,183 more who were injured, and you have a total of death and destruction because the American people have not developed a public opinion upon this question that makes a person who recklessly takes such chances of death feel the opprobrium of his associates.

Three pretty Iowa maids walked from Burlington to Chicago last autumn. Interviewed by a Chicago paper they said:

"Last Sunday we must have walked four hours on the road, though without seeing a soul. So we got back on the tracks, walking 'goose fashion' along the cinder path. It wasn't long before trains were going by, the people waving their handkerchiefs at us. That was great fun."

A railroad statistician posted on the death roll among those who walk the tracks "for fun," adds the comment:

"What's the use of signals, colored lights or other forms of warning!"

The accident record of the American railroads has often been made a weapon in the hands of their critics, but the press and the public do not set forth clearly the true facts. From the total number of employes killed and injured must be deducted the number of casualties due to their own recklessness, carelessness or willingness to take chances, of which Mr. William J. Cunningham in speaking in February of last year before the New England Railroad Club said:

"American railway employes are proverbially chance-takers, and are not as amenable to discipline as British railway trainmen, who have a greater respect for authority and instructions. Americans are noted for always being impatient and in a hurry. These national differences in both passenger and employe bear a relation to accidents, indefinite to be sure, but nevertheless important, particularly in the 'chance taking' by employes."

An analysis of the railroad accidents in the United States for the year ending with June, 1911, shows that out of 356 passengers who were killed, there were only 96 persons killed, while riding on trains, in accidents for which railroads were probably responsible. In the same year the railroads handled more than 900,000,000 passengers.

For 1909 the results showed that a passenger could travel 4,000 times around the earth without being killed—or he could travel 60 miles an hour for 220 years without being killed!

During 1908, 316 railroad companies hauled 455,365,447 passengers without the death of a single passenger in a train accident. In 1909 there were 347 railroad companies, hauling a total of 570,617,563 passengers, without a single accident to a passenger in a train accident. These figures cover a mileage of railway equal to that of the United Kingdom, Germany and France combined, and present a record of immunity from fatalities among those who travel, unequalled, except in the United States in previous years.

Incomplete records for 1910 show that 156 lost their lives in automobile fatalities. The death toll of the automobile for 11 months of 1911 was 257, more than two and a half times the death roll of passengers in train accidents for which railroads were responsible.

One hundred persons met death by accident during the hunting season of 1911, in the Northwestern States.

EFFECT OF PUBLIC OPINION.

What a vigorous public opinion might do in diminishing the railway death and accident list is well shown in the remarkable figures of Fourth of July accidents which have recently become public. The death roll from the celebration of this holiday was for years a matter of anxious concern to many. In nine years it meant 39,219 killed and injured. It was within recent years that the vigorous agitation for a "safe and sane Fourth" started. The figures for 1911 show but 57 killed, while in 1910 the death list was 131 and in 1909 it was 215. Within a little more than two years' time a vigorous public opinion intervened between the American small boy and a time honored method of celebrating a national holiday, changed the customs of a people and reduced the death list from 215 to 57.

The railway owner may make a very fine physical machine, but when it is done it must be operated with all of its complications by human beings, who are not perfect, and who make mistakes.

In our country of large distances and large cities, the question of feeding people and keeping them warm means that transportation must be regular, sufficient and continuous. What would happen to New York or Chicago or Minneapolis if for one week all railroad transportation was abandoned.

The railway owner may make rules and regulations and make effort to continue in business, but he cannot always do so unless public opinion in time makes it clear that when a man chooses as his means of livelihood work in a railroad, he assumes a duty to society as a whole to give absolute obedience to rules, and to remain at work until suitable arrangements are made to relieve him. So dependent is the welfare of the whole country upon regular transportation that in time public opinion will declare that men in a railroad have no more right to disobey reasonable rules than have the men in the army; have no more right to leave in a body than have the men in the army. When they act thus in the army they are punished for mutiny and desertion. Probably no law could be framed at the present time that would cover these ideas, because it is contrary to our American ideas to say that a man shall or shall not work as he may wish. But public opinion would in time crystallize so that in some way strikes or industrial war would be things of the past, and men could only leave in a body by being mustered out in some orderly manner. We hear much about Quasi-Public Corporations, and Public Opinion has gone along way in taking away from the owner of Public Service Corporations the right to manage his own property, to name his own rates or prices, to decide about his methods, and has imposed on him the responsibility of providing safe and adequate Public Service from his private means, but so far has exerted little influence upon the men who have to make the Quasi-Public Corporation of use to the public. If a man decides to work for a Quasi-Public Corporation he becomes a Quasi-Public servant and he has a moral duty and responsibility to society just as much as the owner has, to see that society is not deprived of the service necessary for its existence.

RESPONSIBILITY OF UNION LABOR.

The railroad manager is hampered in obtaining absolute precision and reliability not alone by the human equation, but by the operation

of the force M. Leroy-Beaulieu points out. Over many of the employes his authority is divided with the labor unions, which exercise a powerful influence in determining the extent of the authority he is to be permitted to exercise over their members. To the unions he must look for acquiescence not alone in the rates of pay and terms of employment, but in the rules he makes, the authority he exercises over men charged with various duties, and the obligations under which a large number of men work. His power to cull his forces and discard not only the unfit, but those who do not demonstrate their entire capability, is limited.

The American people have corrected some of the errors in corporate management and realize that Organized Capital is necessary to the welfare of the country, but that it must be controlled and regulated.

Organized Labor is a great force that makes for good or evil of Labor and of society as a whole, depending on the wisdom and patriotism of the leaders.

Most men want to work and support their families but they fear the ridicule of their fellows and sometimes follow too blindly an unwise leader who may do them a real harm.

Public opinion at one time justified burning and torturing people because they did not follow the same religious practices as those in authority. In old Salem it justified burning women who were thought to be witches. Less than 100 years ago it justified one man killing another in a duel because of some insult real or fancied.

Today physical violence and social ostracism are still in practice toward those who do not wish to join a labor organization, but who do wish to work. But Public Opinion will change and say to Organized Labor as it has said to Organized Capital: "You must be fair to all." J. B. McNamara in his confession said "I did what I did for principle." It is only necessary for an aroused Public Opinion to speak out and show the unfortunate men like the McNamaras that the many good men in the ranks of labor and the many good men in the other walks of life will not stand for that kind of principle.

In this great country north and west of Minneapolis you want the best and safest railroads and the best facilities and the best employes who will form a well paid and contented body of citizens, and the making of a sound public opinion will help to produce the desired results.

The transportation business, now trying to readjust itself physically to the growing needs of a great country which has developed rapidly, has been subjected to severe attack and criticism. That transportation is a vital part of commerce and the greatest element, after agriculture, in business success, has been ignored. With other kinds of business it has felt public opprobrium, because an element of the people have revolted somewhat against alleged improprieties of the past. Railroads have had to struggle for existence as have other forms of business. Their history is similar to the history of other forms of business of contemporaneous development, and their present critics, forgetting all that has been done to bring the American railroad to its present high plane of efficiency, have been led into a somewhat unfair attitude.

Of the 609,994 miles of road in the world, which is the mileage as of 1908, nearly 40 per cent, or 233,468 miles were in the United States. The railroad mileage operated has grown from 159,272 in 1890, to 239,652 in 1910. The number of employes of railroads has grown from 750,017 in 1890 to 1,502,823 in 1909, and there are at least 1,000,000 holders of securities. These 2,500,000 owners and employes represent about 10,000,000 of our population and their rights should be considered and protected just as much as those of other classes of people.

In the United States the railroads have lowered their rates, largely by voluntary action, about 25 per cent since 1888, but the tons of freight carried have increased 257 per cent, the mileage of freight trains 80 per cent, and the average haul per ton in miles, 14 per cent. The lowering of rates saves the shipper \$1 out of every \$4 he formerly paid, and was equivalent on the tonnage moved by the railroads in 1910 to the very large saving of \$615,928,000.

As compared with \$275,000 per mile in the United Kingdom, \$109,788 per mile in Germany, \$80,985 in Russia, \$139,390 in France, \$112,879 in Austria, the capitalization of the railroads in the United States is smaller than that of the railroads of any country of the first class, and especially low when considered from the viewpoint of comparative service to business, for in this country the citizens command the service of five miles of railway to one mile that serves the average European.

Listen to what the Railroad Securities Commission says in its report transmitted by the President to Congress December 11, 1911:

“Neither the rate of return actually received on the par value of American railroad bonds and stocks today, nor the security which can be offered for additional railroad investments in the future, will make it easy to raise the needed amount of capital.

“The rates of interest and dividends to outstanding bonds and stocks of American railroads is not quite four and one-half per cent in each case.”

Public opinion must be exerted to see that railroads are fairly treated so that the money needed, especially in a fast growing country like that west of Minneapolis, for increased and improved transportation facilities can be obtained and spent rapidly and freely.

In 1900 the Northern Pacific Railway handled 2,205,317,271 tons of revenue freight one mile, and ten years later, 5,419,084,365 tons one mile, and the next ten years should show greater growth.

FOUR HUNDRED YEARS AGO.

Every age has its problems, and we sometimes think that ours are much more difficult and are different from those that others have had to deal with. I read the following the other day:

“The merchants form great companies and become wealthy, but many of them are dishonest and cheat one another. Hence the directors of the companies who have charge of the accounts are nearly always richer than their associates. Those who thus grow rich are clever, since they do not have the reputation of being thieves.”

This sounds as if it was said by some very active member of the so-called Progressive Party, many of whom seem to be more interested in their own progress into an office or their progress from one office to a better one, than in the real Progress of the people as a whole.

To show that they have discovered nothing new, let me state that this paragraph was published in the Chronicle of Augsburg, Germany, in 1512, 400 years ago, so the modern Progressive who thinks business is all wrong, and that he has discovered the trouble and can remedy it, is somewhat behind the times.

Also the following:

“It is impossible to limit the size of the companies, for that would limit business and hurt the common welfare. The bigger and more numerous they are, the better for everybody. If a merchant is not perfectly free to do business in Germany he will go elsewhere, to Germany’s loss. Anyone can see what harm and evil

such action would mean to us. If a merchant cannot do business above a certain amount, what is he to do with his surplus money? It is impossible to set a limit to business, and it would be well to let the merchant alone and put no restriction on his ability or capital.

Some people talk of limiting the earning capacity of investments. This would be unbearable and would work great injustice and harm by taking away the livelihood of widows, orphans and other sufferers, noble and non-noble, who derive their income from investments in these companies. Many merchants out of love and friendship invest the money of their friends, men, women and children, who know nothing of business, in order to provide them with an assured income. Hence anyone can see that the idea that the merchant companies undermine the public welfare ought to be seriously considered. The small merchant complains that he cannot earn as much as the companies. That is like the old complaint of the common laborer that he earns so little wages. All this is true enough, but are the complaints justifiable?"

This is from a report of a committee appointed by the Diet of Nuremberg to investigate monopolies, and they made their report in 1522. And the Committee found then, as it is true now, that they could not change the situation very much without doing more harm than good!

CHINESE BUSINESS RULES.

I read in the Literary Digest a few days ago four paragraphs which are said to represent the Chinese view of certain business practices. They read as follows:

"Those who deal with merchants unfairly are to be beheaded."

"Those who interrupt commerce are to be beheaded."

"Those who attempt to close the markets are to be beheaded."

"Those who maintain the prosperity of commerce are to be rewarded."

The Chinese seem to recognize that injustice, interruption of business and control of markets are undesirable things and that the expansion and growth of commerce is a good thing!

They suggest pretty drastic remedies, which can hardly be followed out in this country, and they suggest rewarding those who expand commerce; while in this country the tendency is to condemn them.

EFFECTIVE PUBLIC OPINION.

Public opinion, however, in this country, if created wisely by the action of the true majority, can accomplish the desired results without beheading anybody. Public opinion can insist

That in the schools supported by the public, children shall be taught the great importance of absolute obedience, continuous work, accuracy and economy, and that these habits are essential for anyone who is to become a good citizen;

That the Press, supported by the subscriptions and advertisements of the public, and putting forth each year more than 10,000,000,000 copies, can by telling the real truth in simple form do much good to the country and in the long run make more money than by being sensational and yellow;

That the great public service and other corporations must be fair to those who need their service, but on the other hand they must receive fair treatment and a chance to make money, or they will not be ready to serve when the public needs them badly;

That the honest, hard-working laboring man must be allowed to work whether his convictions lead him to belong to a labor organization or not, and that labor organizations must be fair and square in their dealings with their members and with the public at large;

That in the effort to correct abuses that may have developed in business life during the very rapid and really marvelous growth of this country, the tireless energy of our people should not be destroyed by crippling the development of individual responsibility and initiative; and

That laws should only be made on complete knowledge of the real facts.

To create a public opinion, everyone must do some work and not leave the formation of that opinion to a small minority who make a great deal of noise, not always in the wisest way—and everyone can do a little towards helping out.

Maltbie says:

“We are not here to play, to dream, to drift,
We have hard work to do, and loads to lift.
Shun not the struggle; face it, 'tis God's gift.”

This is good advice.

RAILWAY MAIL SERVICE

BY H. P. THRALL,

Mail Traffic Manager of the Harriman Lines.

(From the Chicago Magazine.)

There is no department of governmental or State, nor of commercial work, which gives and guarantees so much for so little, as does the postal system. When you or I put our postcard or letter in the box on the corner, we know that we have millions of chances to one that it will be delivered to the address shown thereon. We know that if it does not reach its destination because of theft or of negligence, that the thief will be caught sooner or later, and that the negligent will get what's coming to them.

I put twenty-two years of my life in the postal service, worked as a postal clerk from 1883 on the principal western line, the Ogden & San Francisco R. P. O. In 1890 I was promoted to postoffice inspector and in 1898 to superintendent of the eighth division railway mail service, which I held until the latter part of 1904, when I resigned to accept my present position. When I was in the postal service I thought all the hard work and grief were ours, but take this from one who has labored earnestly on both sides, I know that grief and hard work are not a monopoly with the postal service.

I wish to impress upon those in the service this truth—the foundation on which their employment rests is the railroads. So far as earning a living for themselves and loved ones, the railroad is their most valuable asset, their best friend. Without it, they would be working in other and possibly less congenial fields.

As evidence of this assertion may I remind them that, of the eight billion pieces of first-class and five billion pieces of other classes deposited by the public annually, 75 per cent of the first named and 95 per cent of the second are dispatched to the railroads? It is estimated that during the fiscal year 1908 the railroads hauled an average of 450 miles, one billion two hundred million pounds of revenue producing mail, about one hundred million pounds of free matter, and about one billion pounds of mail bags. It is difficult for any one to grasp such enormous weights and quantities, but one can get a very good idea of what such a weight of mail and equipment means by thinking of 46,000 cars, each loaded with 50,000 pounds.

If they were all put in one string they would reach from Chicago nearly to Kansas City.

But let me tell of some things of the railroad side and of which many at least may not have had so good an opportunity as I of observing.

A postal car costs the railroad between \$9,000 and \$10,000 to start with. The post office department decides how it shall be designed and built, but the railroad pays for its construction and upkeep. Its original cost, however, is insignificant as compared with the cost of hauling it. More than two-thirds of the space in a full postal car is taken up with letter cases, bag racks and other post office facilities. An official weighing some years ago demonstrated that these cars carry on an average only two and one-half tons of mail. This quantity, if carried as storage mail, or packed as express is, could be accommodated in not exceeding one-eighth of an ordinary baggage car, and the postal car could be cut out.

The general impression that the postal car pay authorized by the government is in the nature of rental is erroneous. Indeed there would be some chance of the railroad making a profit on postal cars if they could be anchored on a side track for post office use at the regular postal car rate.

There are about 1,400 postal cars and about 3,800 mail apartment cars now in service. These represent an investment on the part of the railroads of about twenty million dollars, after deducting the proportionate value of the space in the apartment cars used for railroad purposes. I wish to emphasize that the big expense to the railroads for postal car service is in hauling the postal car. Please understand that postal car payment is adjusted on a mileage basis. The maximum rate of pay allowed for the use, the maintenance, and the haul of the postal car, and the postal clerks, is 5½ cents per car mile. We get nothing for its use as a post office at terminal points, where it is frequently used from one to six hours in advance of the departure of train. This rate it will be observed is slightly more than the fare of two passengers, who can be carried on one seat of a passenger coach. For the same money the railroad is obliged to provide and haul a 60-foot postal car weighing 110,000 pounds and carrying from two to twelve postal clerks. Even at this low rate of postal car pay the railroads seldom receive the maximum, because in many cases they are required to haul the car in one direction without any postal car pay whatever,

and, in many other cases at reduced rates, so I would say offhand that the average postal car pay never exceeds 4 cents per car mile.

Compare the efficiency and capacity of the mail stage with the railroad trains: The average cost to the government for star route or stageline service is $7\frac{1}{2}$ cents per mile traveled, while that of a mail carrying railroad train is but $10\frac{3}{4}$ cents; that is to say, for one stage, or rather a nook in one stage, the pay is $7\frac{1}{2}$ cents per mile; the railroad train, with never less than one car carrying mail and running up to exclusive mail trains of eight or ten cars, receives an average of only $10\frac{3}{4}$ cents per mile traveled.

This enormous transportation of mail is, however, of comparatively recent growth. The sending of messages from one place to another by organized method was practiced so far back in the history of the world that its commencement is not known.

History records that the Romans adopted a system which had been used by the ancient Persians 500 years B. C. It consisted of couriers on horseback posted along the chief roads of the empire for the "transmission of royal dispatches by night and day in all weathers." The Romans all along the line were compelled to supply horses and their maintenance. So you see you're engaged in a business that has been growing continuously from way back.

Until 1862 the rates of postage were based on distances. In 300 miles, 10 cents. In 1851 they were reduced to 3 cents for distances not exceeding 300 miles, 3 cents; exceeding 300 miles, not exceeding 3,000 miles, and 10 cents for distances greater than that.

The use of adhesive postage stamps was first authorized by an act of Congress in 1847. In June, 1856, prepayment of stamps was made compulsory. In 1863 a uniform rate of postage, without regard to distance, was fixed at 3 cents, and in 1883 further reduced to 2 cents, the present rate.

As late as 1860 the mail conveyed only written and printed matter. All know what it handles now.

The Railway Mail Service was inaugurated in 1864, and in 1865, 1,041 miles of railway post office service were in operation, employing 64 clerks, and it was in 1874 that the service was reorganized with eight territorial divisions, each in charge of a superintendent.

In the year after I entered the service there were about 4,000 clerks in the railway mail service, and the length of the routes

was 117,000 miles; the so-called star service routes was 226,000 miles, while the length of the domestic steamboat routes was 15,000 miles.

Compare this with the figures of today: There are now 218,000 miles of mail carrying railroad, with 16,000 railway postal clerks. There are many special and exclusive mail trains running at a rate of speed which at times reaches eighty or ninety miles per hour. Practically all trains now carry mail cars, ranging from the fifteen-foot apartment to the exclusive mail train of eight or nine postal and mail storage cars. These are, in fact, post offices on wheels, without which the postal service would never have advanced beyond the antiquated "D. P. O." distributing post office system, with its exasperating delays and otherwise unsatisfactory service.

It will be seen, therefore, that notwithstanding its ancient origin, post office work on a big scale is very modern.

The most striking illustration of the rapid development during the last forty years is offered on the lines I work for. Shortly before the Overland Route commenced running trains to the coast, the charge for carrying a letter from the Missouri River was \$5 via the Pony Express, which with its relay of horses made the 2,000-mile run in from eight to ten days.

When the first telegraph wire across the continent got into service this charge was dropped to \$1 per half ounce and the letters were enclosed in 10-cent government stamped envelopes, one for each half ounce. The opening of the telegraph line destroyed the Pony Express, but during the last few weeks preceding its end, the riders brought an average of 700 letters per week from the Pacific Coast. These Pony Express riders carried two pouches, of leather, strapped to the rider's saddle, before and behind, and were never to contain over twenty pounds in weight. This transportation of letters was almost entirely employed by the government, merchants and traders.

Today, the Union Pacific fast mail train, No. 9, which runs from Omaha to San Francisco, and to Portland, is one of the most important and probably the heaviest exclusive mail train in the world. It is made up of four 60-foot postal cars and from three to five 60-foot mail storage cars, and in riding this train I have noticed the speed indicator frequently register seventy to seventy-five miles per hour. It has the right of way over all other trains and makes ten and a half hours faster time to San Francisco than

the fastest passenger train; and woe to the dispatcher or trainman who in any way impedes its progress.

The Harriman Lines are the pioneers in the adoption of steel cars. There are twenty-eight all-steel postal cars in service and sixty-nine additional now being built—an investment of nearly one million dollars. They are all metal, no wood being used in construction or fittings; in fact the only wood in the car is in the chairs and table tops of the bag racks. They are electric-lighted—no gas or oil. All this adds to the expense, but it was volunteered on the part of the companies for the protection of the lives of the postal clerks and the safety of the mails.

And now let me present a few figures which may be new to many:

The postal clerks are carried free on the railroads. For travel during 1908, reduced to the equal of one man riding, the figures footed up about six hundred and thirty million miles. At a rate of 2 cents per mile that would be twelve and a half million dollars.

Averaging the clerks all around at 160 pounds, their total weight would be equal to about fifty million tons, one mile.

For the year 1909 the government spent 72 cents for rural free delivery for every dollar paid the railroads for their entire service.

Compare the average rate 4 cents per mile paid by the government to the railroad for supplying, maintaining and hauling a postal car and its complement of clerks on passenger trains, with the railroad tariff for hauling empty cars on freight trains: Sleeping, dining and parlor cars on their own wheels are charged for at 12 to 20 cents per mile; passenger coaches, 10 to 18 cents per mile; baggage, mail and express cars, 8 to 15 cents; freight cars, 6 to 10 cents per mile.

In transportation lingo we use the terms "dead weight" to indicate the weight of the cars, and it may be of interest to know that in hauling freight there is 1 1-10 tons of dead weight to one ton of freight, but in hauling mail we have 21 7-10 tons of dead weight to one ton of mail.

As compared with its dealing with all other organizations and individuals, the post office department's arbitrary contracts with the railroads appear to be very much one-sided, and it would seem that the railroads, which are the back-bone of the mail service of this country, are entitled to and should receive most liberal support and compensation from the government.

BLOCK SIGNALS AND AUTOMATIC CONTROL

(Conclusions and Recommendations of the Block Signal and Train Control Board, December 26, 1911.)

SUMMARY OF LEGISLATION.

Before stating the conclusions which have been reached by the board as a result of its investigations, it will assist to an understanding of the situation to review briefly the legislation under which the work of the board has been conducted and to indicate the present status of the question of safety upon railroads as viewed by the board.

By joint resolution of Congress approved June 30, 1906, the Commission was directed to investigate and report on the use of and necessity for block-signal systems and appliances for the automatic control of railway trains in the United States. The Commission was further directed, in transmitting its report to Congress, to recommend such legislation as to the Commission seems advisable.

In compliance with the terms of this resolution the Commission conducted an investigation, the results of which were set forth in a report to Congress under date of February 23, 1907, and which was published as Senate Document No. 342 at the second session of the Fifty-ninth Congress.

That report contained quite full information concerning the use of and necessity for block-signal systems on the railroads of the United States, but gave little information relative to appliances for the automatic control of trains, as owing to the limited extent to which such appliances had been developed and used it was possible for the Commission to obtain little more than merely theoretical knowledge concerning them. The situation was such that it became apparent to the Commission at an early stage of its investigation that Congress could not be furnished with the desired information concerning automatic train-control appliances without extensive tests conducted by Government agents and at Government expense. For that reason, and because the resolution of June 30, 1906, did not confer authority to make such tests, the Commission, on January 3, 1907, addressed a communication to Congress recommending that supplemental legislation be enacted authorizing the Commission or some other governmental agency to supervise and

conduct experimental tests of such automatic train-control devices as appeared to be meritorious, and that an appropriation be made sufficient to secure the services of competent men to supervise and conduct such tests and defray the other expenses incident to such a project. This recommendation was repeated in the Commission's report of February 23, 1907, before referred to.

Acting upon this recommendation of the Commission, Congress provided in the sundry civil act of March 4, 1907, an appropriation of \$50,000—

to enable the Interstate Commerce Commission to investigate in regard to the use and necessity for block-signal systems and appliances for the automatic control of railway trains, including experimental tests, at the discretion of the Commission, of such of said signal systems and appliances only as may be furnished in connection with such investigation free of cost to the Government in accordance with the provisions of the joint resolution approved June 30, 1906.

To carry out the direction of Congress as expressed in this provision of law, the Commission appointed its Block Signal and Train Control Board on July 10, 1907.

The American Railway Association, through one of its committees, gave the Commission cordial assurance of the aid and co-operation of the association in carrying out the direction of Congress, and has aided to the extent of securing the use of tracks for such tests as have been conducted by the board.

This board organized on July 12, 1907, and immediately began its work of investigation. At the outset it had presented to it for investigation and test a great many devices which were intended to promote safety in the operation of railway trains, but which bore no relation to either block-signal systems or automatic train-control appliances, and which therefore could not be dealt with under the resolution of Congress, which was specific in its terms. A number of proprietors of these miscellaneous safety devices which were thus refused consideration brought the matter to the attention of Congress, with the result that a further direction was inserted in the sundry civil act of May 27, 1908, providing that—

hereafter the Interstate Commerce Commission shall be, and is hereby authorized, at its discretion, to investigate, test experimentally, and report on the use and need of any appliances or systems intended to promote the safety of railway operation, which may be

furnished in completed shape to such Commission for such investigation and test entirely free of cost to the Government.

This provision broadened the scope of the board's investigation and greatly increased its work. Since it became effective the board has investigated and, as far as practicable, reported upon all appliances and systems intended to promote the safety of railway operation that have been offered to it for examination. It is largely because of the additional labor imposed upon it by this legislation that the work of the board has not been brought to an earlier conclusion.

Coming now to the main purpose of its original appointment, namely, investigation and report upon the use of and necessity for block-signal systems and appliances for the automatic control of railway trains, the board, in its report last year, reiterated its recommendation for legislation to require the use of the block system, and summarized the results obtained from tests of two automatic train-control devices of the mechanical trip type.

While these tests indicated that both of the devices tested would require some modification to make them entirely satisfactory, the general results confirmed the view that the principle of the automatic stop is sound; and it is the opinion of the board that the use of automatic train stops would tend materially to increase safety in the operation of trains. The board, however, had not at that time secured full information with regard to the performance of other types of automatic train-control devices, and therefore was not prepared to make a recommendation on the general subject.

The board does not, of course, consider that it has by any means exhausted the field of investigation embraced in the terms of the legislation under which its work has been conducted, but it believes that the information gained through such investigations as have already been made is sufficient to justify the conclusions and recommendations now presented.

The broadening of the scope of its investigation, as effected by the provision of the sundry civil act of May 27, 1908, has required the board to take cognizance of the whole question of safety in railway operation. The board could not confine itself specifically to one branch of the subject, such as automatic train-control appliances, but was compelled to consider the question of safety on railways generally, in all its various aspects.

While the questions of block signaling and of automatic train control have been considered sufficiently to enable the board to reach reasonably definite conclusions, the general subject of safety in railway operation as contemplated by the supplemental legislation of May 27, 1908, embraces a great variety of questions which can not adequately be dealt with by an organization such as this board, possessing authority merely to investigate and report.

This general question of safety in railway operation is, of course, more important than any of its phases, such as automatic train control, and in its investigation, extending over a period of more than four years, the board has arrived at certain conclusions with reference to this general question which it deems of sufficient importance to be stated. In addition, therefore, to stating at this time its conclusions on the subject of block signaling and automatic train control, the board proposes to discuss in a broad way the general subject of safety in railway operation and to point out what it believes to be the proper course to be taken to remedy evils that undoubtedly exist.

THE BLOCK SYSTEM.

The board can add nothing to what it has said in previous reports concerning the proved superiority of the block system over the time interval or dispatching system of train operation. From figures collected by the board under authority of the Commission it appears that on January 1, 1911, there were 71,269 miles of railroad in the United States operated under the block system. Of this mileage 17,711.5 was automatic and 53,557.6 was manual. The increase in mileage of road block signaled over the previous year was 5,511 miles, more than three-fifths of which, or 3,473.8 miles, was automatic.

As compared with the total road mileage, over 240,000, the number of miles worked under the block system is small. Moreover, the increase in mileage indicated by the figures now under consideration was practically all upon roads that already had the block system in use. The extension of the system to new roads—that is, to roads which had not before used the space-interval method of train operation—was not such as to warrant the belief that the block system will be brought into use generally within any reasonable period of time without governmental action compelling it.

There is ample justification for such action when the number, and particularly the disastrous character, of the collisions which

have occurred under the time-interval or train-dispatching system are considered, together with the small cost of installation and operation of a simple form of the block system which would very materially diminish the chances of collisions due to defects inherent in the dispatching system, and it is greatly to be regretted that the extension of the block system has proceeded so slowly. This is especially unfortunate in view of the repeated recommendations of the Commission to the Congress for legislation requiring the gradual introduction of the safer method of handling trains afforded by the use of the space-interval system.

These recommendations should have all the more weight owing to the fact that in the block system there is nothing new or untried, as it is in successful use on 75 important roads distributed throughout the country. All that the Commission has asked is that those roads not using the block system gradually conform to the practice of the roads that do.

The propriety of using the block system on lines of light traffic, which was touched upon in the last annual report of the board, is treated briefly in Appendix B.

AUTOMATIC TRAIN STOPS.

In its last report the board noted an increased interest on the part of the railroads themselves in the development of automatic train-control appliances. As was shown by the annual statistics published by the Commission as of January 1, 1911, automatic train stops are in use on the lines of the Washington Water Power Co., the Pennsylvania Railroad in New York City, the Hudson & Manhattan Railroad and the Erie Railroad, and there is now an installation on the San Francisco, Oakland & San Jose Railway.

Since the date of the board's last report tests of two automatic stops of the intermittent electrical contact type and one of the mechanical trip type have been completed. The information obtained from tests, together with knowledge of the general state of development of the art of automatic train control, leads the board to conclude that there are several types of apparatus and methods of application which, if put into use by the railroads, would quickly develop to a degree of efficiency adequate to meet all reasonable demands. Such devices properly installed and maintained would add materially to safety in the operation of trains. In many situations, under conditions existing in this country, the board is convinced

that the use of automatic train stops is necessary to the safe operation of trains.

The board does not wish to be understood as stating that the conditions of entirely acceptable automatic train control, as formulated by it in the 10 characteristics published in its report of last year, are fully met by any one of the devices it has thus far examined. On the contrary, the art of automatic train control is still largely in the experimental stage; but it is far enough advanced to warrant the installation of available devices with a view to their further development to meet the demands of safety in train operation.

Having in mind the protection of train movements in particularly dangerous locations, the board is convinced that were the use of automatic control devices required in such locations railroad managers would have no difficulty in complying with such a requirement in a manner fully to meet the demands of safety.

Since the disastrous collision on the Baltimore & Ohio Railroad at Terra Cotta, D. C., on December 30, 1906, in which 43 persons were killed, accidents of the same character have continued to occur with a frequency which would be appalling had not the American public become accustomed to them. These accidents could have been prevented by the use of automatic train stops.

Few, if any, of the mechanical or electrical elements entering into the construction of automatic train-control systems involve any new principles, nor are they materially different from the elements used by the railroads in the every-day operation of their interlocking and block signals, train brakes, and other devices. The ingenuity and initiative which have been manifested by railroad engineers in the development of much of the apparatus used in the conduct of railroad business greatly exceeds, in the opinion of the board, that required to produce apparatus which can be superimposed upon existing signal systems adequately to compel obedience to the signal indications.

The board does not consider that the question of the actual design and construction of the apparatus necessary for automatic train-control systems has been as great an obstacle in the way of their adoption as the operating questions involved in their use. In view of the manner in which they have been used in the situations where employed, and the skill with which other problems involving the handling of complicated train movements have been met, it is futile

to advance any difficulties involved in such a step as an excuse for failure diligently to undertake the development and practical application of such devices to general steam surface railroad conditions.

Further, the board has no hesitancy in saying that had the railroads directed the same effort toward the development of automatic train-control apparatus that has been devoted to the development of interlocking and block-signaling apparatus, we should now have adequate installations of automatic train-control devices which would permit an engineman to handle his train without interference as long as he did it properly, but would intervene to stop his train if he disregarded a stop signal or ran at excessive speed where speed restriction was prescribed.

The railroads have been decidedly lax in developing the automatic stop, and progress has been so slight in this direction that the actual experience which is necessary for the formation of proper legislative judgment is lacking. The board, therefore, does not believe that at the present time legislative compulsion to this end would be wise; it does believe, however, that the railroads should be urged and expected to develop the art of automatic train control so as to provide devices which will meet their operating conditions. This appears to the board to be entirely practicable, and should it not be done with a reasonable degree of expedition, steps should be taken by the Government to stimulate such action.

It must not be assumed, however, that the use of automatic devices of any kind will remedy all the faults at present existing in train operation. Such devices can do no more than reduce the percentage of accidents that occur through failure, from any cause, to observe the prescribed conditions of safety. The automatic stop is purely an emergency device, like the fire extinguisher. We do not depend upon fire extinguishers to prevent fires, but when, in spite of our elaborate precautions, a blaze nevertheless starts, the presence of a fire extinguisher near at hand is often the means of forestalling a disastrous conflagration. So with such devices as the automatic stop. They can not insure that the fundamental conditions of safety on railroads will be observed, but when the necessary precautions for the prevention of certain classes of train accidents are ignored, they may intervene to forestall the accident which might otherwise happen. But when all is said that can be said in favor of the use of automatic safety devices, it still remains true that they correct none of the fundamental defects in American railway practice. Bad

methods of operation and management, inefficient supervision and inspection, poor discipline, and lack of co-operation between the different branches of the personnel, deficient structures, roadway, and equipment, all of which introduce fundamentally dangerous conditions, still exist, and can not be remedied by the use of automatic appliances.

GENERAL CONDITIONS AFFECTING SAFETY.

It is unquestionable that, notwithstanding the increased safety due to the extension of the block system during the last 10 years and to the increasing use of safety appliances, there is no sensible diminution in the total of railway casualties.

A careful study of statistics will disclose that the accidents which occur year after year with such dreadful monotony are due to substantially the same causes, thus showing that methods of railway operation have not kept pace with the needs of railway development.

The fact which has most strongly impressed the board is the lack of some central authority with power adequately to deal with the subject of safety in all its phases. The trouble with all railway safety legislation thus far seems to be that it has only attempted to deal with the problem in piecemeal fashion. A certain glaring evil has manifested itself or has been brought into prominence by the occurrence of a particularly distressing accident or series of accidents, and this has led to demands for legislation to deal with the particular evil thus disclosed. Such is the force that has placed the safety-appliance, hours-of-service, boiler-inspection, and accident-investigation laws upon the Federal statute books, and such is the force which is now demanding legislation compelling the use of the block system and automatic train stops, uniform signals, steel passenger cars, uniform clearance conditions, and better manning of trains.

Much of this piecemeal legislation has resulted in good, and there can be no doubt that it has greatly contributed to safety. The safety-appliance acts particularly have been of inestimable benefit to employes. But it is nevertheless true that legislation of this character lacks correlation, multiplies administrative functions, and duplicates work. It very naturally causes irritation and resentment on the part of railway managers, because they know not where it is going to stop and have constantly to create new functionaries and introduce changes in their already complex organiza-

tions in order to meet its demands. Finally, it produces results not at all commensurate with its cost both to the public and the railroads. Furthermore, there are many matters in connection with railway operation, having a vitally important bearing upon safety—comparatively unimportant each in itself and yet most important when taken in the aggregate—which are now being totally neglected simply because Congress does not take the time and trouble to consider them and legislate on them in detail.

The results contemplated by the joint resolution of June 30, 1906, and the supplemental legislation of May 27, 1908, can not be accomplished by any such organization as this board. The mere examination of devices intended to promote safety in railway operation can lead to but meager results from the standpoint of public safety. This board can do no more than render an opinion concerning the merits of devices examined, and when favorable opinions are rendered it has only the effect to enable the proprietor of the approved device to advertise more extensively. A further evil in the situation is that the proprietors of approved devices, and even many of those that are not approved, are soliciting Congress for legislation compelling the railroads to use their particular devices.

Any further legislation dealing with safety in railway operation, to be fully effective, should deal as comprehensively with the whole subject of the physical operation of railroads as existing law now deals with the subjects of railway rates and accounts. There is ample justification for this, as it goes without saying that any measure which has for its object the saving of life is of vastly greater importance than legislation dealing with the financial operations of the railways.

In other countries it has been found necessary to put such matters in the hands of a commission, a cabinet minister, or some other executive bureau or officer specially qualified for the work and exercising ample yet carefully restricted powers conferred by the national legislative body.

To indicate how broadly the question of safety is considered in other countries it may be stated that in France and Germany the Government assumes complete control over all questions relating to the construction, maintenance, and operation of railways that in any degree touch their safety as agencies of transportation.

Under the various acts for the regulation of railways in Great Britain the British Board of Trade has power to supervise the construction of new railway lines or additions to lines already constructed. This power extends to the permanent way, bridges, viaducts, tunnels, stations, and other works, including signaling and interlocking. The board of trade is also authorized to investigate accidents and make recommendations looking to the removal of the causes of accidents. It is directed to require all railway companies throughout the United Kingdom to adopt on all their passenger lines the block system and to interlock all switches and signals; also to fit all trains carrying passengers with continuous brakes. The board of trade may also, for the purpose of reducing or removing the dangers and risks incident to railway service, make such rules as it thinks fit with respect to the avoidable danger to persons employed on any railway arising from any operation of the service. Under this provision a code of rules for the safety of employes has been formulated by the board. It may also require the use of any appliance which has been shown to its satisfaction to reduce dangers to persons employed on railways and may require the disuse of any plant or appliance which has been shown to involve danger. Railway companies are required to give all reasonable facilities for conducting experiments, to be made without risk or expense to the railway company.

It is the opinion of the board that with respect to the matter of safety the time has come in this country to inaugurate a system of supervision over interstate roads somewhat similar in character to that now administered through the British Board of Trade. An organization should be created having ample, though carefully restricted, powers of investigation and inspection, as well as of administration of laws sufficiently broad to insure adequate regulation of the details of construction, maintenance, and operation of all interstate roads, so far as concerns the safety of railroad travel and employment.

Such a body should assume control of the functions now comprehended under the various safety-appliance, boiler-inspection, hours of service, and accident-investigation laws, and in addition should take cognizance of matters relating to personnel, methods of operation, and the physical construction of railroads, as well as the condition of roadway, track and equipment, and should have authority to require repairs or changes to be made when necessary to

remedy dangerous conditions. It should supervise train schedules in so far as safety in train operation might be affected by the physical condition of roadway and the use or nonuse of means to promote safety; in short, it should deal as comprehensively with the question of safety on interstate railroads as State railroad commissions now deal with the question on the railroads under their jurisdiction.

The need for such a Federal body is shown by numerous instances of unsafe practice which have been observed by the board. For example, a recent collision on one of the largest and best organized railroads in this country, a road which has always been foremost in the use of improved apparatus and methods to promote safety, was found to have been due to a deficiency in an interlocking plant. One of the most significant facts developed in the investigation of this accident was that the electric circuits used for controlling the movement of switches and signals at this plant were entirely different from those shown by the circuit plan provided and on file.

The board also has knowledge of one road where for a distance of 107 miles there is not a single telegraph office, either day or night. The traffic on this road is comparatively light, but important trans-continental passenger trains are run, and on one portion of this same stretch of track only a short time ago a collision between freight trains occurred. The condition that would exist were a serious accident to happen to a heavily loaded passenger train on this portion of the road, say, 40 or 50 miles away from a telegraph office, can well be imagined. The use of conflicting rules and signals, a glaring instance of which practice was mentioned in the board's report last year, may also be noted in this connection.

Conditions like these mentioned, which are liable at any time to lead to accidents causing loss of life, are frequently brought to the attention of the board. In many cases these conditions exist without the knowledge of responsible railroad officers. Inspections conducted by the board have developed numerous facts which lead to the conclusion that in many cases responsible railroad officers either do not know what is going on on their own roads or that they are permitting inexcusably dangerous practices to continue even when the cost of correcting such practices would be insignificant. Periodical inspections by some governmental agency empowered to correct unsafe conditions would have a strong tendency

to insure that inspections made by the railroads themselves would be more thorough, and that the corrective measures taken by them would be more effective.

The only progress thus far made in securing greater safety in railroad operation has resulted directly from publicity. While publicity is undoubtedly a powerful influence, it is too much like a weathercock, which points only when the wind blows, and, if undirected, it can not logically be expected to accomplish more in the future than it has in the past. The experience of the past affords abundant reason for not delaying longer, and any experience to be expected in the future, so far as it can aid in forming judgment on the necessity of legislation recommended at this time, can only be cumulative in character and simply confirmatory of the judgment now formed.

The practical effect of the publicity which would be given to bad conditions by the inspections of an organization such as is here proposed would be to compel the observance of proper methods and a stricter observance by railroad companies of their own rules and regulations. The conditions necessary for securing safety are well known to railroad managers. They are discussed frequently in meetings of railway associations, and organizations of railway men are constantly dealing with matters which would be taken cognizance of directly by this proposed governmental organization. The existence of these numerous voluntary railway technical associations, of the American Railway Association itself, and of the various State commissions point strongly to the necessity for some clearing house through which the best ideas of all interested parties can pass and be put in such form as to make them available for the benefit of all. The railroads are well organized to represent their own interests, as are also their employes, but the public must look to governmental agency to protect its interests.

Many of the State railroad commissions now exercise within their respective States all the powers here advocated. The board believes that a Federal body having similar powers over interstate roads is both reasonable and necessary. A large number of the railroads traverse two or more States. While the State commissions have done much to promote safety, each within its special field, the general question is as broad as the Federal jurisdiction, and can only be properly dealt with by a Federal body. The very fact of the limited jurisdiction of the State commissions makes

their actions, influenced as they necessarily must be by local conditions, so diverse as to impose upon the railroads a wide variety of regulative restriction, which is not only confusing but annoying. The moral effect of a Federal organization in stimulating individuals to greater effort and compelling closer attention to the conditions of safety would be great.

In matters of railway rates the public and the railroads have in the Interstate Commerce Commission a body to which all parties may appeal. No corresponding body having to do with the more important problem of safety in railway operation exists. In the very nature of things the presence of a properly constituted Federal body could not help but tend strongly to unify the practice of different railroads, and by co-operation with State Commissioners evolve a uniformity of governmental requirement highly desirable from the standpoint both of the public and the railroads. A considerable portion of the existing causes of accidents does not lie in the absence of expensive apparatus or complicated installations, but in the failure of the roads to provide proper rules and standards for the conduct of their operations; or, when proper rules and standards are provided, to make sure by frequent inspection and examination that they are understood, and by constant supervision to see to it that they are properly carried out. By harmonious co-operation of the Federal Government with the railroad companies themselves and with the various State commissions and associations interested in the development of the technics of railroad construction, maintenance, and operation it is believed that methods could be evolved and standards to suit different conditions gradually adopted in such manner as to prove far from burdensome to the railroads and yet greatly promote safety.

There is abundant reason for such a disposition of the matter. The Federal Government now regulates the type of cars in which mail shall be carried, but has nothing to say about the track or bridges over which such cars run; it prescribes in detail the location and design of appliances used by trainmen on both freight and passenger cars as well as locomotives, but says nothing about block signaling or the interlocking of switches for safeguarding the movement of trains; it provides for the inspection of locomotive boilers, but has nothing to say about bridges, trestles, or track, failures of which cause more wrecks than boiler explosions; it prescribes the method of packing and handling explosives for trans-

portation, so as to prevent the disastrous effects from derailments and collisions, but does nothing to prevent the derailments and collisions from occurring; it limits the hours of duty of employes in train service, but says nothing about the hours of duty of a signalman at an interlocking plant where train orders are not handled, nor the hours of a drawbridge tender, a trackwalker, or a watchman.

The board's recommendations are the result of four and one-half years of special study, investigation, and observation; and besides this actual experience with conditions existing in this country there has been available to the board the experience of other countries, all of which has been considered. It is believed, therefore, that any further study could only result in more specific recommendation—such recommendation, in fact, as should form no part of the general legislation proposed. Any further study should be conducted by the railroads themselves, acting in co-operation with and under the guidance of such a central authority as is here indicated. Such co-operation is believed to be absolutely necessary if the results obtained are to be homogeneous in character and of any real and lasting benefit. Notwithstanding the organization which individual railroads can bring into service to solve the problems confronting them, it is hopeless to expect that any adequate solution can be brought about by the railroads acting independently.

The same is true of State commissions, the membership of which is too often political in character and subject to change at frequent intervals. It is idle to expect that any uniformly good results could be expected from the very large number of such commissions acting independently. But if the railroads with their organizations and the State commissions can all be brought together and made to co-operate under one central authority, then, and then only, can beneficial results be brought about.

The board has not ignored the fact that the largest railroad systems in the world are to be found in this country, and that the magnitude of the problem to be solved is greater than in any other country; the very magnitude of the problem, in fact, is believed to constitute the strongest possible argument in favor of the establishment of a Federal body, such as is here advocated, to deal with it.

Full weight has also been given to the financial inability of many railroads to provide all facilities for promoting safety which their officers would be glad to employ, and full recognition has been made of the progressiveness of the great bulk of railroad operating offi-

cers, whose consistent endeavor it is not only to make the best use of all means within their control for promoting safety but constantly to secure appropriations to enable them to inaugurate better and safer methods of working. The larger railroad companies, or those whose income is greatest, would probably of their own initiative have undertaken many of the reforms to compel which legislation has been enacted.

It is believed by the board that if such an organization as is here proposed were to be created and clothed with adequate power to deal with the question comprehensively it would be hailed with satisfaction by practically all the progressive railroad managers of this country.

Such an organization would need to be headed by men of undoubted ability and would require a large force properly to perform its functions. By proper correlation and co-operation of its various agencies, however, the work could be done economically, and it is believed that the total cost of performing these more numerous functions under such a plan would not be greatly in excess of the sum now spent in carrying out the requirements of existing piecemeal legislation.

M. E. COOLEY, *Chairman.*

AZEL AMES.

F. G. EWALD.

*B. B. ADAMS.

MINORITY REPORT

The establishment of a governmental department or bureau to exercise such extensive authority over the railroads as is contemplated in the proposal of my fellow members would be an experiment of such magnitude and would involve such a marked departure from previous practices that it ought not to be tried except in the most cautious and gradual way, after a period of negotiation or tentative action, and therefore I have not agreed to that part of the fourth annual report which embodies this recommendation. The evils or weaknesses which are to be found in the railroad service, and which are mentioned in the report, are not to be denied or minimized. Many of our railroad corporations are administrative machines of such magnitude that inefficiency in some of their parts

*Approved, except as to the matter referred to in the minority report.

is almost inevitable, and in frequent instances the need of correction by an outside authority is undisputed. It is also to be admitted that the piecemeal legislation under which our Government at present regulates safety on railways is uneconomical and crude.

In the separate States of the Union and in Europe may be found examples of governmental regulation of the physical operation of railroads in which results have been salutary. But to attempt to regulate the operations of 240,000 miles of railroad, carried on by 1,500,000 men, in 3,000,000 square miles of territory, through the instrumentality of a man or body of men sitting in Washington, with or without a large number of territorial or district agents, subordinates, or associates, would be a task involving many new questions, for the settlement of which there is no precedent to serve as a guide. This Government runs the Post Office Department with a good degree of efficiency, but its problems in that department are exceedingly simple compared with the problems of railroad operation. The Interstate Commerce Commission inspects freight cars all over the country, and this work has had beneficial results, but here also the problems are simple and are dealt with under the stipulations of a rigid statute. The British Board of Trade has exercised useful functions in the promotion of safety on the railways of the United Kingdom, acting through its four accomplished inspecting officers, but these officers' powers have never been other than recommendatory in any department of their field until after a long period of experiment. Compulsory powers have been granted by Parliament only after the inspectors, the public, and the railway officers have had opportunity to study the situation so as to be able accurately to estimate the probable effect of compulsion.

The question of railway safety is large and complicated. Perplexing problems beset the managers of the roadway department, the locomotive and car department, and the department of personnel, which latter includes train operation. All these departments have to admit as constant partners the traffic and financial departments, to which they must look for money for support. The relation of Government to these railway operations must be, primarily, that of inquirer. Conservative public sentiment in this country is jealous of governmental interference in private enterprises. The doctrine of *laissez faire* is not entirely dead and out of date. The country is so large and its problems so difficult that that doctrine is necessary, in spite of its incidental evils. The people are jealous of

interference even as to those enterprises which perform public service and exercise monopolistic powers, except as faults of management which harm the public are seen to be so bad that "reform from the inside" can not be hoped for. Bad management, therefore, whether shown in the use of unsound rails or the employment of incompetent men on trains, whether in excessive speed of trains over poor tracks or in overworking officers, demands, in the first place, inquiry—publicity. Publicity often cures obscure evils which can not well be reached by governmental agencies directly.

As regards the question of safety, our Federal Government has thus far attempted no important regulation of railways other than publicity, except to require, as in the safety appliance statutes, that all railways shall adopt the practices of the best railways. In going thus far we are on tolerably safe ground. No very bad mistakes have been made. But for the Government to command specific changes in railway practice, except in this cautious way, would introduce a radically different policy. If and whenever an agent of the Government decides what a railway officer shall do, the State assumes some degree of responsibility for the acts of such officer.

It will be agreed that inquiry and the securing of publicity should properly be the first step in anything that the Government may do in this field. And this first step should be taken before proceeding to make laws concerning others. Beyond publicity we enter an untried field. A railroad president, in dealing with the important questions concerning safety which come before him for decision, has the counsel of a board of directors and the advice of well-paid subordinate officers, possessors of valuable technical and detail knowledge. The Government investigator, coming in to give these experts advice, labors under serious disadvantage. If he is an expert, like the British officers or like the engineer of an American State railroad commission, he will probably have to tackle each problem single-handed. Or, if comparison be made with the doings of some of our State commissions, we see the deadening influence of uncertain tenure of office, imperfect appreciation on the part of the public, resulting in small salaries, and the distraction of political influences. The Government officer must be a rare man, both as to education and experience and as to character and integrity, to be able satisfactorily to decide the intricate questions presented, even from the narrow scientific or administrative standpoint, to say nothing of deciding

the financial issues involved or of advising Congress how to frame compulsory legislation.

If the railroads of this country, after due warning from the President, voicing an intelligent public sentiment, shall take no effective steps to correct clearly defined evils, this rare man (or men) should be sought out. The natural way to secure him (or them) would be to get a few of the best available and test them as investigators. The Government investigator should be a "high-grade" man, at least as high as the manager of the operating department of any one of our large railroads. The railway manager's task has often proved to be, and the governmental investigator's task is likely sometimes to prove to be, so difficult as to baffle the best talent. Such being the case, trial is the only safe test. The tasks being intricate, the officer's education, experience, and character must be so high that his failure to accomplish what is expected or hoped for will not result in his condemnation. In many things his functions will be akin to those of the Supreme Court, and a personal character so strong that the public will accept unwelcome decisions is a prime desideratum.

The successful action of the British Government in promoting safety on the railways of the United Kingdom has been referred to. It is to be observed that this success has been accomplished by very slow degrees. The four inspecting officers are men of education, technical training, and experience. More than that, they follow a pretty settled policy. The appointing power sees to it that vacancies are filled with men who will work efficiently in conjunction with the older inspectors. (The "board of trade," so far as it relates to safety in details of operation, may be said to be simply a minister—the president of the board of trade, who is a political person—and the four inspecting officers; that is all.) Compulsory legislation is adopted by Parliament only where experience has pointed out a plain path. The inspectors are only human and they sometimes make mistakes. Their problems are difficult and, therefore, the rule that their conclusions as to railway operation shall be recommendatory and not mandatory is not only desirable but rational.

A very reasonable and safe, yet progressive, course for our Government to take in the matter of railway safety legislation would be to enact the proposed law making the use of the block system compulsory. The principal section of this law is drawn in general

and liberal terms. It simply requires the block system without prescribing apparatus or details. To require the use of the block system is simply the making of the best practice the general practice. Such a law has a firm basis in experience—widespread, general, and long-continued experience. The function of the governmental administrative body would be that of seeing that a well-understood requirement was complied with. It would, no doubt, be necessary for the Government to supervise such a law through the medium of competent men, possessing railroad experience, but such administrative officers would not have the difficult or complicated questions which would arise in the general governmental supervision of railroad safety in all its phases.

The question of automatic stops, from the standpoint of the United States Government, is the opposite of the block-signal problem. Instead of being simple, it is to a considerable degree elusive, because many questions concerning the efficient installation and operation of automatic stop apparatus are yet to be settled by experiment. Neither the Government nor any other body can at this time prescribe simple rules which are sure to be satisfactory; and a statute dealing with matters of this kind is quite likely to be abortive unless it is simple. It is to be remembered that with the best block signaling facilities and interlocking and with competent enginemen the occurrence of collisions which would have been prevented by the use of automatic stops is so very rare that a mathematical comparison of the relative safety in operation (with versus without stop apparatus) can not be made. Compulsory legislation would be likely to be either wasteful of resources or else ineffective by its crudity.

Even the block-system legislation, as proposed by Mr. Esch's bill, would be somewhat experimental. Much caution would be necessary to avoid mistakes, for the introduction of the block system in the best form is costly and in many cases must be slow. If the most complete apparatus is used the first cost is large. If a road is to use the minimum apparatus and depend more on the efficiency of the men, it must train these men with care, seeing that they have conscience and character as well as technical ability. The company must educate supervising officers to attend to this training of the rank and file, and in many cases must accomplish a considerable improvement in the quality of its officers.

If three, four, five, or six men competent to deal with large questions of railroad operation were to take up, on behalf of the Government, the problems relating to the safety of passengers and employees which are now pending; if, having full powers of investigation, they were to devote to these problems their entire time for a year or two, and if they were then to lay before the Commission, the Congress, and the public the results of their studies, then the proposal of the majority of this board could profitably be considered.

B. B. ADAMS.

Note.—Unfortunately the railway accidents preventable by any of the measures contemplated in the inquiry of the Board constitute less than one-eighth of the total—the vast majority of which in railway operation the world over are traceable to individual carelessness, recklessness, disobedience of orders or lawlessness. Already, as the Board said in its third annual report, “NOWHERE IN THE WORLD have appliances for safeguarding railway transportation been so highly developed as in this country.”

RAIL RATES AND WAGES

(Editorial in *The Railroad Trainman* on Chairman Prouty's Traffic Club Address.)

In an address to the Traffic Club of Pittsburgh, March 28, the Honorable Charles A. Prouty, member of the Interstate Commerce Commission, gave expression to his views on the subject of railroad rates, railroad wages, and their relation to the public. If the Commissioner has been fairly quoted, he takes a rather peculiar position in regard to railway employes and would place them in the same position as the railroad companies themselves when a request for increased wages had been made to the railroad companies. We quote from the press reports of the address as follows:

"Suppose organized railway labor makes a further demand for increased wages, and that the railroads accede to this demand. The increased wage adds to the expense of operation and reduces net revenue. The railroad applies to the Interstate Commerce Commission for leave to advance its rates on this account. What now is to be the answer of the Commission?

"The railway rate is paid by the whole body of the public. If, therefore, this increase in wages is unjustifiable, and if on that account an increase in rate is allowed, it results that the general public, including all other forms of labor, is required to pay what is unjust and unreasonable.

"Must the government not therefore be satisfied not only that the added wages are paid by the railroads, but that they are necessarily and properly paid? And is not the railroad thus placed in a most unfortunate and embarrassing dilemma?

"Consider this matter now for a moment from the public viewpoint. It was recently suggested that certain demands would be made by railroad labor in a certain section of this country which would be supported, if not complied with, by a general strike of all classes of trainmen. Ought the public not to protect itself against the consequences of such possible action?

"I have believed that it would be finally found necessary to provide by federal enactment that no strike should be declared by organized labor upon any interstate railroad until the question at issue had been submitted to arbitration and a certain length of time had

intervened after the award, and after notice that the strike would be inaugurated, notwithstanding the award.

"It is doubtful if we could compel either the railroads or the employes to comply with the awards. But certainly, in view of the stake which the public has, the government may require of the railroad as its servant, upon the one hand, and of organized labor, as a condition of its organization, upon the other hand, that the use of these public facilities shall not be interrupted until every attempt has been made to avoid that necessity."

There is no new argument in the statement that increased wages means added expense to the cost of operation and consequently a reduction in net revenue. The railroad, however, has to go to the Interstate Commerce Commission for permission to advance its rates when its costs of operation threaten to make its business unprofitable. The Interstate Commerce Commission so far does not appear to feel that a question of increased wage cost to the railway companies entitles these companies to anything so long as the best paying roads are able to make a fair showing in their earnings. The Commissioner asks what is to be the answer of the Commission. Other businesses not regulated by the government would not ask any such advice from the public. They would simply add the increased cost of operation to the cost of their product, but the railway, under the disadvantage of having to allow the public through the Interstate Commerce Commission to arrange business so far as its costs are concerned, has the dual disadvantage of having to satisfy the public and the Interstate Commerce Commission.

The Commissioner said very truly the railway rate is paid by the whole body of the public. The rate on everything else is paid by the public. It is true that the individual may not directly purchase everything that is produced but the entire public, directly or indirectly, does and the individual pays his proportion of the increased cost of everything produced, whether he buys every individual article of production or not.

The public, for example, does not buy steel buildings, but it pays for them.

The question is asked by Mr. Prouty, "If, therefore, this increase in wages is unjustifiable?" etc. Who is going to determine whether a demand for increased wages is justifiable or not? The employer naturally says the increase is not justifiable; if it were left to his

judgment the railway employes of the United States, and every other country for that matter, would not be earning enough money to make it worth while to go to the pay car to collect it. The employe naturally looks at the amount of work he is doing, compares it with what he has done in the past, and measures his increased earning ability with the increased responsibility and the difference in the work he performed for a certain wage and decides what he believes his increased labor entitles him to. The public is not the judge in these matters any more than the railway employes are going to be permitted to judge the justice of an increased cost in cotton and woolen goods because of a ten per cent increase in the New England factory district, nor because of a 30 per cent increase in the price of glass, nor because of the increased cost of coal through the jobbery of the coal mine owners who have forced a suspension of operations in order to get rid of a surplus amount of stock and to find an excuse to boost the price of their product. The coal mine companies at least can not find a justifiable cause for increase in cost above the cost of increased wages, but there isn't any doubt but that the advanced rate of wages will be far exceeded by the advanced cost of hard coal.

The public as a whole has not yet reached that point where its general interest in humanity will lead it to believe that any increase to its particular cost of living is justifiable from any viewpoint, although individually each unit, or group, of the public earnestly believes that whatever it produces is entitled to a higher price.

The Commissioner takes a rather peculiar position when he asks that the government must be satisfied that wages are necessarily and properly paid. While the Interstate Commerce Commission has been empowered by law to do certain things to the railroads it can take it for granted right now that if it ever seeks the authority to do as much to the railroad employes that there will surely be things doing in legislative circles.

The railroad employes in this country are going to be the judges themselves as to whether wages demanded are justifiable or not. They can not be accused by any one of having made unjust demands on their employers from a viewpoint of earnings based on past service, capitalization and the apparent cost of operation, and their increased duties and responsibilities.

The Commissioner appears to be trying to hatch out of his argument a scheme for the compulsory submission of every disputed question to arbitration. We believe in arbitration; we believe it is the sensible method of disposing of industrial controversies, but we do not propose nor do we believe the railroads or their employes would submit to any proposition that takes out of their hands at any stage their absolute right to dispose of their own differences.

No strikes are declared by organized labor on railroads until all of the questions in dispute have been thoroughly discussed and the public given ample opportunity to know all of the ins and outs of the controversy. But to go into the question, for instance, as Canada has done, which places all of the advantage on the side of the employer and takes away every advantage from the employe, will not be entertained by the railway employes of the United States for one minute.

We believe in voluntary submission of controversies and we believe that this ground has already been covered so well that it is past the experimental stage and in the future can be relied upon to bring about desired results more quickly and much better than it has in the past, but when the question becomes one of letting the public decide whether railroad wages are justifiable or not we take the same position the public does in its relations to its own production and wages and say that we feel fully able at the present at least to take care of these questions of controversy that rise between us.

CORRELATION OF AMERICAN INDUSTRIES

BY L. E. JOHNSON, President Norfolk & Western Ry. Co.

(Before the Traffic Club of Pittsburgh.)

*"And if a kingdom be divided against itself, that kingdom cannot stand.
"And if a house be divided against itself, that house cannot stand."*

—The Gospel according to Saint Mark, 3:24-25.

Whoever speaks of "The American House of Industry"* in Pittsburgh may well feel that he addresses an elder branch of that impressive family at one of its principal and most favored seats. In the district that derives its name from this City and in turn has made this City what it is, the genius of the American people has wrought most mightily and has erected the most stupendous and potent productive mechanism known to the world. Here inventive skill has combined the most efficient processes and the most effective machines for transforming inert masses of ore and fuel into means for satisfying the wants of the world's consumers; here labor and capital are organized on a tremendous scale, not to combat one another but to work together, as co-ordinate productive agents, to create those values which, equitably divided between them, permit a high standard of living, ample wages and abundant opportunity to the one and fair interest and wholesome profits to the other.

This City is the center and heart of the great American steel industry, that industry which is well known as the barometer of industrial conditions and of which it has been well said, that it is either a prince or a pauper. Here, when industry is active and traffic presses closely upon their facilities for moving it, the American railways (and also those of other countries) must come for material to extend their lines and to augment the capacity of those that already exist. To you, in such times, the railways look for rails, cars, signalling apparatus, materials for locomotives, metal specialties of an hundred varieties. And here, too, when the activity of industry diminishes, when the weight of adverse conditions beats down enterprise, is felt the full and immediate effect of the injury.

Pittsburgh is, to the railways, not only a market in which they must seek materials and supplies, but it is also a center of traffic.

*The original title of Mr. Johnson's address.

To this center they bring food and other articles which it does not produce for the consumption of its people and an abundant share of the raw materials which its industries require. From this center they take away, ultimately to pass to every quarter of the habitable globe, the greatest traffic, in bulk and value, that originates within any other region of similar or even considerably larger area. The traffic so supplied is not alone of importance to the roads which reach the Pittsburgh District, but wherever an American railway exists and participates in the interstate commerce of the American people, there is a channel for shipments originating here, and there also move, in greater or less volume, the products of Pittsburgh's industrial activity. These facts, recognized as soon as they are mentioned, point unmistakably to the mutual inter-dependence existing between the productive industries of this district and the transportation agencies by which they are served, including among the latter not only the railways that reach Pittsburgh, but, as well, those that unite with them to form routes to all the markets in which Pittsburgh buys or sells. The activity of production here is the activity of the transportation industry over all these routes, the prosperity of the one is the prosperity of the other, depression of the one is the depression of the other.

The industrial institutions and associations of this City serve well to establish the truth of the assertion that manufacturing and transportation, at least, are co-ordinate branches of the American House of Industry. Agriculture may, indeed, be able to enforce its claim to being still the dominant branch, as it is unquestionably the eldest, but neither Agriculture nor Exchange, both important members of the family, may look down with too great assurance upon their sturdy co-partners who share in the duty and responsibility of maintaining the position and dignity of this great House. All are brothers-in-fact and all are inextricably bound and interdependent by reason of the great complexity of modern industrial association. The situation evokes the law laid down by the greatest Law-Giver of the Ages that "a house divided against itself—cannot stand." Shall the American House of Industry become a "house divided," or, winning by mutual understanding, by wise adjustment of temporary and relatively unimportant differences to more complete solidarity, shall it shape its destiny so as soon to attain to its rightful kingdom of Industrial Supremacy? America has the natural resources; its people possess the character, the ability,

the skill to contrive and the strength to pursue; the necessary capital is available, the East is ruddy with the dawn of the day of realization; nothing but America itself can block America's way to that pre-eminent position which European industry cannot much longer maintain if the force of American competition is not throttled by domestic misunderstandings.

Such an occasion as this may best be utilized, therefore, to consider how most fully to foster and to perpetuate that harmony of understanding and that consistent unity of action which, without sacrificing one branch of the American House of Industry to any other branch, will enable all to work together toward the common aggrandizement. The fact that such conferences as these are held is, in itself, most encouragingly persuasive that the desired end will be accomplished.

The initial requirement which must be recognized as the basis of such co-operation as has been urged is the admission on the part of both buyers and sellers of railway service that both parties to these transactions are performing co-ordinate functions of similar importance, and that the contract between them ought to be on such terms as to enable both to benefit therefrom. Economic efficiency may, in fact, be defined as consisting of ability to produce something, whether steel rails or railway transportation, pickles, or pumpkin pies, and to dispose of that something on such terms as satisfy both producer and purchaser. It is well, I apprehend, that either party shall admit that the other has met this requirement, even though proof may not be forthcoming. After all, this degree of mutual consideration ought not to be difficult of attainment. What would be the value of the most complete and extensive stock of groceries if there were no means for getting them into the hands of consumers? What would be the value of the most complete and efficient equipment of delivery trucks and wagons, if there were no goods to be delivered? The answer is that Pittsburgh without railways would be as impossible as railways without traffic.

From the recognition of this incontestable fact to the realization that, unless both producers and railways are able to earn satisfactory returns, there will be a decrease in the supply of whichever is at a disadvantage, is but a short step. Because of their mobility, both labor and capital tend away from the less remunerative industries and toward those more profitable, until an adjustment is effected. Prosperous production, therefore, requires and implies

prosperous transportation and prosperous railways cannot exist without prosperous producers.

On the railway side, recognition of this requirement has long found expression in the adjustment of charges for freight transportation to the necessities of the purchasers of transportation; in other words, in the consistent effort to open all markets to all producers by means of transportation rates which will yield profit to both parties without burdening either. This is the real meaning and application of the much misunderstood principle of "what the traffic will bear," and when so properly defined and fully comprehended it is plain that it is the only principle upon which the present development of American industry could have been accomplished.

The application of this principle in the daily negotiations between the shippers and the railways has created a class of highly practical students of the conditions of production and consumption, who as traffic officers of the railways, serve the latter most efficiently when they are of the greatest service, also, to the producers. That traffic officer is most efficient whose industrial vision is most acute, whose knowledge of the field of production is at once the broadest and most detailed, whose appreciation of the changing needs of actual and potential shippers is most sensitive and sympathetic. So satisfactorily have traffic officers, as a class, met these requirements that it is but fair to say that, through their traffic departments, the railways possess and utilize a very complete store of knowledge concerning the industrial conditions and demands of the American people. I apprehend that, in the main, the relations between the shippers and the railways have been maintained chiefly through the traffic departments, in the full light of this knowledge, with an intelligent desire to acquire more knowledge and with not a discreditable degree of wisdom. That mistakes have been made is not to be denied, but that these have been relatively rare and unimportant exceptions is most unhesitatingly asserted.

The Interstate Commerce Commission has never looked too leniently upon railway conduct and there are those who have regarded it as prone to exaggerate admitted evils, if not at times to find evil where none actually existed, yet the commission has formally given testimony in favor of the large body of American railway traffic officers. I quote from one of its annual reports as follows:

"Of course there are various conditions—commercial and otherwise—which act in most cases as checks upon arbitrary conduct, and even where such safeguards do not exist it stands to the credit of railway managers that they are rarely chargeable with wanton extortion. . . .

"In view of their opportunities, it is perhaps not too much to say that the obligations of neutrality in this regard are usually observed, and that discriminations of this character are not often the subject of complaint. Ninth Annual (1895) Report of the Interstate Commerce Commission, pp. 16-17."

What must be the answer to the inquiry whether the knowledge and sympathy of the railways for the producers have been fully reciprocated? Perhaps it would not be becoming on the part of any railway officer, before this body, to suggest its answer to that inquiry. Yet, he may certainly be permitted to express the opinion that, while shippers may at times have failed to show that sensitiveness to railway rights and that recognition of railway necessities which might have been desirable, the lapses are readily explained. The great mass of shippers are dealers upon a moderate scale in the products of a single, simple department of industrial activity and cannot be expected to take as broad a view of the needs and conditions growing out of relations to all forms of productive industry as the railway officer whose success is dependent upon his ability to adapt his course so as efficiently to serve the largest possible number of producers, producing points, and forms of production. On the other hand, it is asserted that most of those shippers who forward their traffic in large volume maintain a consistently sympathetic attitude toward the railway industry and are generous and considerate in their dealings. Their daily and intimate contact with the carriers, bringing with it a necessary recognition of inter-dependence and of reciprocal service, has supplied that understanding from which nothing less significant could have sprung than full acceptance of the truism that fair and even generous dealing is the expression of the most enlightened self-interest.

The carriers cannot escape a large share of responsibility for the failure of the smaller shipper to pay due regard to so essential an element in the relations between them. Engaged in the performance of a service of *quasi* public character, holding their rights to administer their own property, as they do, subject to the public right of supervision and subject to such modifications of their practices

or methods as public opinion may justify, it is the fault of the carriers themselves if they have failed to induce a favorable public sentiment through the legitimate instrumentality of the fullest and most friendly understandings with their smaller as well as their larger patrons. Admitting, however, for the purpose of the argument, the utmost dereliction in this respect that can be charged against them, the railways, having resolved no more to sin by these omissions, may rightfully demand the support and assistance of the larger shippers in bringing about a satisfactory understanding with all shippers. Authority for this position lies in the incontrovertible fact that the aloofness of the smaller shippers is the direct result of their fear or mistrust of their larger competitors. This finds frequent and emphatic expression in the repeated averments by smaller shippers that they are not so much concerned as to the actual charges upon their shipments provided they can be assured that no one else is permitted to ship at lower rates or upon more favorable terms. The abolition of rebates but partly solves the problem, though I cannot but regard that as the most notable accomplishment in traffic affairs during the past decade. And, in passing, let me say just here that, while not failing to give due and proper credit to Congress, the Commission, and other governmental authorities for their part in bringing about this needed reform, yet we should not fail to remember that no small part of this result has been due to the initiative and co-operation of the railway managers and traffic officers of this country and to their cordial support in making the laws on this subject thoroughly effective. To sell transportation in wholesale quantities to a large and regular purchaser has not lost its attractiveness, nor has the ability to offer traffic in enormous quantities been deprived of its persuasive power. Miracles are as unlikely to result from regulative legislation as from any other sort of human effort. The larger shipper still possesses the advantages, in negotiations concerning rates or facilities, which grow out of the revenue producing value of his traffic and if these advantages are pressed there are lawful possibilities, the realization of which would be resented by those unable to profit by them. Every railway traffic officer and every industrial traffic manager knows the truth of this assertion and both recognize the necessity of resisting the admission into railway practice of any concessions to the large shippers which would warrant resentment from any quarter. If railways were not prohibited from entering, among themselves, upon those arrangements which would make self-re-

straint effective and secure stable rates and the orderly maintenance of reasonable relations with all shippers, the remedy would be in their own hands and they could apply it with wisdom and finality. But, their hands are tied by existing laws and even the recently adduced "rule of reason" apparently does not relieve them from the burden of the uneconomic methods which those laws impose upon them. Therefore, it is necessary for them to invoke the co-operation of the larger shippers and to ask of the latter, that they shall not, in the furtherance of narrow and selfish interest, press upon even the weakest carrier demands for lawful concessions which, if admitted, would become the subject of complaint and bring about a new period of controversy and unrest. The railways are fully warranted in making this request, for they can rest it confidently upon the truth that no mere advantage in rates or facilities which any carrier could lawfully grant would, in the end, compensate for the injuries which would come to all through a renewal of the controversies that have characterized the decade just ended.

Public sympathy is always with the poor as against the rich, with the weak as against the strong, with the small as against the great. The under-dog may have his jaws firmly gripped upon the throat of his rival, but while the noise of the contest continues the sympathy of the crowd is his. The smaller shipper may have immense advantages in production and even in the common market, but let him acquire a grievance against a railway over alleged favoritism to a larger competitor, and he has only to air it in public to convince many that duty requires them to agitate for his redress. This attitude of the public is neither unnatural nor to be condemned. Doubtless public prejudice in favor of the small shipper will yield to reason if it appears that he has complained without justification but, even though explanation be practicable, the occasions requiring explanation should be reduced to a minimum. In short, if mutual understanding between the buyers and sellers of railway transportation is essential to the general well-being—and I have spoken in vain if I have not established that truth—the small shipper must not be disregarded. He, too, must be satisfied, for his prosperity and his contentment are the safeguards of the rights of the larger shippers, the guarantors of the prosperity of all.

When shippers and railways unite in the determination "to live and let live" the railways may well be asked to formulate a stand-

ard for their own well-being with which they will be satisfied. It will not be difficult, I apprehend, fully to meet that requirement. The railways ask nothing more than the unquestionable enjoyment of stable revenues sufficient to permit them to fully maintain the integrity of their properties and properly to render the services which the public demands of them and a moderate return upon the private capital invested in the public enterprise. If, however, a road is so fortunately situated as to be able to earn a larger return as the result of the imposition of rates which are reasonable, just and un-discriminatory, then no one should gainsay its right to receive such return. When the supply of railway labor is satisfactory in quality and ample in quantity, when capital is available at fair rates and in sufficient amount to build all proper extensions and to provide for all improvements that would increase efficiency and minimize the possibility of accidents, we would have a condition that applies to every well-conducted, successful American enterprise. Any other condition ought to be, and in long run will be, quite as unsatisfactory to the general public, as to railway managers and owners. Under present conditions, I am inclined to think that it is possible to narrow the standard somewhat further and that, for practical purposes, in this direction, the question may be considered settled when it is ascertained whether capital currently flows in ample volume into the railway industry. That is, after all, the standard which will measure success or failure.

THE COMPETITION FOR CAPITAL.

It is impossible to predict what volume of new capital will be needed for railway development in the United States for even the next five years. Yet no one doubts that the amount will be very large or that industry will be seriously affected if it is not forthcoming. It is necessary, then, to give heed to the conditions under which it must be obtained. One of the most significant of these conditions is the inevitable competition for capital with the producing establishment and groups of such establishments which constitute the larger shippers. Within scarcely more than a decade there has been a great change in the attitude of the general investor toward manufacturing undertakings. Formerly the capital for these enterprises was supplied by those directly interested in them and by their immediate associates, who neither sought nor hoped directly to draw largely upon the general investment funds that are handled

through the great exchanges and money centers of the world. But now all this has been changed. The numerous combinations of the smaller industrial enterprises to form larger single organizations, promising large profits and permitting the issuance of securities resting upon broader bases and with, apparently at least, less risk of loss from local depression or disaster, have opened the great exchanges to the share and bond offerings of these productive concerns. At the same time the pressure of increased cost of living upon the large class that is wholly or partially dependent upon income from securities has rendered a very large body of investors exceptionally eager to obtain somewhat higher rates of return than is usually obtained from investments in railway securities. This mutual desire has, in part at least, been met by those in charge of industrial enterprises, with the result that large sums of money which might otherwise have sought investment in railway construction and betterment have been diverted. This effective competition for capital is not likely soon to cease and it may therefore be safely assumed that in the immediate future railway investments must be made more attractive and safe if the railway industry is to obtain its proper share of available capital.

The second consideration has reference to the existing capitalization of nearly all the larger American railways. Two general classes of railway securities now exist and are outstanding in the hands of the public, both of which have numerous sub-classes. The most conservative investors, including that large class representing fiduciary investors consisting of savings banks, insurance companies, trustees, and others, who, from the nature of the laws controlling such investments, require the utmost safety, confine their investments in railway capital to high-grade securities consisting usually of first mortgage bonds, and will only become the purchasers of these when they know that they are strengthened by additional expenditures made upon the property, which expenditures are themselves represented by interest paying or dividend paying securities. This class of investors are usually satisfied with relatively low percentage rates of return, but demand unquestioned security for the payment of both principal and interest. We must recognize the fact that the larger portion of the capital, which represents the tremendous investment in the properties of the railway companies of this country, has heretofore come from this class of people. Those investments, however, have already been made and represent, in a large measure, the values of the present property of the railway;

and, in considering this condition, we must not fail to recognize the additional fact that these first mortgages run for long periods of time, their maturity is projected into the distant future, and that the first mortgage bond in most cases can no longer be utilized by the railway companies as a source of capital or credit. Their purposes have been accomplished, the money has been received and has been expended—in the majority of cases, I doubt not, with wisdom and prudence—in the construction of the great highways which have heretofore served and are now serving the commerce of this Nation.

In their history, however, it has been and will be necessary for the railway companies to appeal to all classes of potential investors and hence they issue junior mortgage bonds, income bonds, equipment trust obligations, convertible bonds and both common and preferred shares. These forms of securities have been issued from time to time as conditions demanded, and as they could be sold on the market. In many cases the securities of the railroads, especially their junior securities, have been marketed at higher rates of interest; or, if at a lower rate, then at less than their par value. Such a condition is unfortunate and it is to the interest of the shipping public that those conditions should no longer exist. The railway companies, holding their property as they do under public supervision, should be permitted to establish and maintain such suitable rates as will give assurance to the investing public that the roads will be permitted to earn a sufficient income to pay the proper return upon such investments as are necessary to provide for the public service. When assurances of this kind are given, a properly managed road should be able to go before the conservative investor and ask for investment in the junior securities of the road upon terms which will permit progress in economic development, and the establishment of the facilities demanded by the public.

The capital required for this progressive development must come as the result of the sale of securities whose attractiveness and safety will depend upon the earning capacity of the railroad rather than upon the value of the property as a salable asset. This earning capacity must be shown to be uniform and progressive, year in and year out. Its sole foundation rests upon fair, reasonable, and suitable rates. When the investing public is satisfied that a policy which will permit such stability has been adopted as the result of deliberate judgment of the people of this country, I feel safe in

predicting that the necessary capital will be available to the railroads on such terms as will enable them to perform a far greater service to the people than they have been able heretofore to render.

In the creation of this public sentiment, the shippers must take the leading part and I appeal to thoughtful men that it is absolutely to the interest of the shippers that this condition may be brought about. These facts are the basis of a legitimate appeal for the consideration and co-operation of all shippers, both large and small. The American House of Industry is of imposing strength, but even with harmony and co-operation its strength is not greater than is needed in the contest that is in progress. Divided, it cannot stand, much less could it continue in prosperous development.

It is incumbent upon all to think calmly and clearly, to throw aside prejudice and narrow selfishness and to work together with candor, harmony, and fair dealing for the common good.

STATE RAILWAYS OF FRANCE

BY MARC DE VALETTE,
Avocat, Paris.

(Specially Prepared for the Railway Library.)

In an address at the closing session of the National Civil Service Reform League of Philadelphia, held on the evening of December 15, Judge Martin A. Knapp, of the Commerce Court, in speaking of a more extended government control, says:

"Even thoughtful men do not always realize how things are tending in this great country. Let us look at the extraordinary increase in the number and scope of government activities, the tremendous breadth which they have assumed."

Judge Knapp goes on to ask whether it is really the business of the governments to assume such responsibilities and to encroach upon what has heretofore been considered as private enterprise. If he feels confident that "the results will be commensurate with the government's activities," I would draw his attention to a very sad experiment which has now been going on for three years in France.

There are two State railways in France. One, however, is made of a lot of secondary lines that had been opened by small private companies and which, for various reasons, could not carry out their enterprises: The State bought them out and amalgamated them into the first "Réseau de l'Etat." It is doubtless true that the geographical location of that Company does not enable the State to secure such good commercial results as for instance those of the "Compagnie du Nord." But for all that, its management is worked on exactly the same basis as that of the Ouest-Etat, of which I am presently to speak.

The Compagnie de l'Ouest—well known to Americans who come over to Paris by Le Havre, since Paris-Le Havre is one of its main lines—was redeemed more than three years ago by the State, under the pretense that the management was not good and that the expenses and guarantees of interest to be incurred by the Treasury were too high. Perhaps, in order to shed some light on that argument, I may say that all French railways were built under the regime of concessions granted by the State, exclusively for their respective

portions, to the companies: l'Est, le Nord, l'Ouest, Paris-Orléans, Paris-Lyon-Méditerranée and le Midi. In order, however, to encourage the French public to subscribe to those private companies the necessary capital, the State, besides other obligations which it took upon itself, guaranteed the payment of 4% interest to be refunded at the time when the companies shall be redeemed by the State.

"L'Ouest" was therefore redeemed because of its bad management. Now let us see what has been done after three years by the new management; what remedies have been applied, and what are the financial results of 1911.

In order to give an idea of that "réseau" and of its possibilities, it may be advisable to give first some figures and statistics, and to state that it runs through Normandy, which is perhaps the richest part of France, with Le Havre—a very important seaport—as one of the terminal points. The actual traffic is very important and the possibilities of the line are extremely promising if we look at the following figures:

During the summer of 1911 the average number of trains for passengers circulating every day was:

Main lines.....	1,453
Suburb lines.....	1,058
Total.....	<u>2,511</u>

The number of passengers during the last ten years has increased in the following proportions:

Years	No. of Pas.
1901	96,692,563
1902	94,540,479
1903	94,640,679
1904	95,754,567
1905	97,317,621
1906	101,657,791
1907	105,065,406
1908	104,774,945
1909	109,667,202
1910	111,738,674

At the end of November, 1911, the rolling material was:

Engines of all descriptions.....	1,953
Tenders	1,416
Carriages for passengers.....	4,680
Trucks for goods.....	38,181

The lines operated at the present time amount to 5,992 kilomètres (3,715 miles).

The gross income for exploitation amounted in 1911 to 233,014,000 francs. The net loss was no less than 38,262,700 francs.

The question naturally arises: Why are the results so bad whilst all the private companies in France can return interest to their shareholders? There are many reasons which are summed up in this short sentence: The management of the Ouest-Etat company is exceedingly bad. This can easily be shown by a few instances.

Out of the 1,953 engines there are at the present time 229 which have been used for 50 or over 50 years! There are besides 984 engines which are kept in use although it is admitted by the officials that they are no longer fit for the work required from them. Only 955 machines are of a modern type. This explains the various causes for which the roads are every now and then blocked and the traffic stopped. During the first nine months of 1911 no less than 919 engines had to stop on their way for want of power or from being damaged. The result of this may be exemplified by the following record which I quote from the "Railway World:"

"A very serious case of late delivery concerns the paper works at the little town of Meulan on the Seine, only twenty-five miles from Paris. A formal complaint that has been sent as a monthly circular to the State Railway for a year or so gives the time taken for transportation from Meulan to Paris as three weeks. This works out at a speed of a mile and a half a day. A truckload of paper sent from Meulan on September 28 was delivered in Paris on October 24; on Monday, November 13, another truckload was delivered; it had been dispatched on October 16. This was the result of the ordinary goods service.

"The manager decided to try the fast goods service at 50 per cent higher tariff. A wagonload was dispatched on October 24. It was not delivered until November 11. The manager has refused to pay the higher freightage. Meanwhile other means have been attempted. The consignments have been addressed to other goods stations in Paris, but with no better result. The paper mills have therefore decided to abandon the railway, and have bought a couple of motor wagons, which give a service twenty times more rapid than the State Railway.

"An expert mathematician gives the speed of the State Railway goods service, computed from these facts, as 101½ yards an hour, but apparently this was more rapid than in other instances. A consignment of six sacks of wax from the Batignolles Station in Paris to the suburb of La Garenne took twelve days for a distance of a little over four miles—rather more than twenty-one yards an hour.

The roads are in a bad condition and although it was decided, when the government took over the management of the Western Company, that 2,250 kilomètres of lines were to be entirely reconstructed, the amount of kilomètres actually reconstructed have been:

For 1909.....	56 Kilom.
1910.....	224 Kilom.
1911.....	420 Kilom.
Total	700 Kilom

Bad engines and bad roads easily account for delayed trains arriving at the Paris Stations (Montparnasse, St. Lazare, or Les Invalides) delayed over fifteen minutes were, for the month of July, 1911, in the proportion of 52.7%, and I am sorry to say that this was not much better during the other months.

The following figures show the percentage of trains delayed over 15 minutes on the whole of the réseau during the first nine months of 1911 and during the same months of the previous management:

Percentage of trains delayed over 15 minutes:

	1911	Under prev. man.
January	15.3%	4.8%
February	8.0	2.4
March	5.0	1.3
April	5.3	2.2
May	2.8	1.1
June	5.3	2.4
July	13.9	2.2
August	11.6	4.6
September	12.8	7.9

Any private company would find a remedy for such a situation: it would cut down the expenses which are not strictly necessary. Far from doing so, the State has *within one year created 5,280 new posts or situations* and a very good joke has been circulating about

a bookkeeper recently appointed—apparently a high official's protégé—who said that he had "*horreur des chiffres et de la comptabilité.*" This shows in what spirit the clerks and employés of the company approach their work. But the Government finds its own profit by creating 5,280 new posts; it will get 5,280 votes above those which were expected. In the meantime the public, that good French public, saves money in order to pay new and heavy taxes and support a railway company from which they get the worst services.

If there is any doubt about the above statements, or if they are thought to be exaggerated, I may quote the words of Monsieur Yves Guyot, who had for those years the management of the old Réseau de l'Etat, as a minister of State. He states distinctly in one article published in "*Le Matin*" of the 10th December, 1911, that whenever the budget concerning the said company was examined and discussed, his colleague the Minister of Finance, who was M. Rouvier, always asked him to leave over for the following years whatever concerned reconstructions of the roads and the buildings, or the buying of new rolling stock and whenever any of these reconstructions were begun, they were endlessly interrupted. One line of 70 kilomètres (37 miles), for instance, was built in seven years.

The employés, he says, are to be considered as voters and supporters of the Government, that is why they are more and more exacting and do not attend to their duties. They act as a sort of union and the Government has no power to refuse what they ask, under such circumstances, regarding wages, salaries and conditions of work.

It should be remembered that in consequence of the great railway strike of 1910, which for a few days paralyzed most of the traffic in France, the companies dismissed a certain number of the employés who had been foremost in the strike movement and strongly advocated not only the strike but also revolt against the companies. After the few hot days of the struggle all the dismissed employés asked for their "*réintégration*," but the companies—at least the private ones—argued that the dismissals were due not to the fact of the strike itself, but to indiscipline and to the doctrine of "*sabotage*" (that is to say "*destruction*"), preached openly to all, and therefore refused the "*réintégration des cheminots*," a phrase, by the way, which has been uttered many a time all over this country, as during one year and even more than one

year various members of the "Chambre des Députés," pressed by their electors, raised the question of the readmission of the railway rioters before the Minister of Public Works. In spite of the efforts of the Government and especially of the Monis Cabinet, which did its best for the "Cheminots" and strongly urged the companies to readmit them, none of the private companies gave way to that strong official pressure, decided as they were to do away with whatever smacked of indiscipline and revolt.

This was a wise resolution which was approved by all Frenchmen who like good order and good service, but, sad to say, the Government did not follow the example set by the private companies, and at the cost of indiscipline of future dissensions, even at the cost of the passengers' lives, the Cheminots were readmitted to their posts for the only reason that they were voters and supported the Government. "When the employés of the Ouest-Etat want to influence the Minister of Public Works, the general manager, the managers of the various departments," says Monsieur Yves Guyot, "they know that nothing is more easy, thanks to their number, to their votes and to the organization of their union; if the general manager or the heads of the various departments want to resist the employés, the Minister of State asks them confidently not to bother him: 'ne me faites pas d'affaires.'" It is true that in France there is a false conception of the State, especially among the small people, they all of them imagine that the State is their father and that being very rich, that good father ought to pay them big wages for doing nothing.

There is a "project de loi" introduced by the late Ministère Cailaux, the object of which is to substitute the authority of the Government for that of the private companies as regards the "employés." There is a very good reason for that, says Monsieur Jaurès, the French socialist leader, as we have now a good proof that the working classes get much higher wages from the State than from private enterprises. The Ouest-Etat has granted to its "personnel" a statute which private companies refuse to their own employés, and it is a great comfort to think that the "Réseau modèle" spends now 35,000,000 francs more wages than the old company. It is a triumphant way to say that the welfare of the general public is of no importance in comparison to that of the "Cheminots"; as regards the commercial and financial possibilities of the lines they are also to be sacrificed to that socialist conception of men and things.

We hope, however, that the projet de loi referred to will fail; there are good reasons for such failure. It is needless to say that the management of the Ouest-Etat is unpopular in France, and the experiment made for the last three years is quite conclusive. Besides, it is said that in France "le ridicule tue," ridicule is a deadly arm; if so, the management of the Ouest-Etat should have been buried by that time. It is exceedingly funny to hear or to see all the daily jokes played upon that poor St. Lazare Station and upon whatever is connected with it. St. Lazare means disorder, riots, tumults, incoherence and high unconcern of officials and clerks. It also means, I hope, that one experiment of that kind is enough.

FRENCH STATE RAILWAYS.

(From the Railway News, London).

In a report on the French Budget for 1911 the British Minister of Paris gives the following table showing the return per cent on the outlay for the construction and maintenance of the State railways since 1900:—

OLD STATE RAILWAYS.

			Return
Closed account—	Outlay.	Net Produce.	p.c.
1900	£25,038,080	£486,225	£1.94
1901	25,516,240	507,122	1.98
1902	26,000,440	543,657	2.09
1903	26,416,320	570,545	2.16
1904	26,877,040	555,701	2.07
1905	27,273,040	595,070	2.18
1906	27,902,590	572,705	2.05
1907	28,586,280	572,705	1.87
1908	29,360,439	452,950	1.54
Provisional figures—			
1909	29,971,588	498,195	1.66
Budget estimates—			
1910	31,035,588	493,326	1.59
1911	32,131,988	474,052	1.47
Western or new State railways.—State debt on 1st January:			
1909	£110,044,000		
1910	109,052,000		
1911	107,776,000		
1912	106,460,000		
Cost of first establishment (works, purchase of rolling stock, etc.):			
Special Treasury account—			
1909, expenditure	£1,710,900		
1910, credits voted	2,586,480		
Supplementary Budget—			
Credits voted	4,344,720		

WORKING ACCOUNTS.

Supple- mentary Budget.	Receipts.	Working expenses.	Surplus receipts.	Sums to be paid to the Western Company and charges on capital.	Deficit (after taking into account the figures in the preced- ing column).
1909	£8,717,600	£5,588,000	£3,129,600	£4,372,000	£1,242,400
1910	9,100,800	6,555,248	2,545,552	4,624,000	2,078,448
1911	9,320,560	6,850,368	2,470,192	4,715,512	2,245,320

HISTORY AND RECENT LEGISLATION.

As the system of administering the French State railways has been changed by recent legislation, which comes into effect with the finance law of 1911, the moment is opportune for giving a brief survey of the history of these railways since the time of their acquisition by the State. The greater part of the following information was contained in the report of the Budget Committee.

The old system of the State railways—the new system being the Western railways lately acquired by the State—was formed in 1878 by the purchase of a number of small isolated systems, mostly of local importance only, which the concessionaires could not either finish or keep up in a proper manner. In 1878 a law was passed in which it was stated that until regulations in regard to these railways had been drawn up the Minister of Public Works would ensure their provisional working in such a manner as would be the least onerous to the State financially, and that decrees would be issued respecting the working expenses and receipts. The Minister for Public Works pointed out at the time that the intention was to create an entirely provisional condition of affairs which might be ended or continued without causing any disturbance in the public services. The administration of these lines was to form a sort of supplement to the other administrations, but was to act entirely independently, though placed under careful and rigorous control. The Government, instead of adapting to the working of its lines the rules which the great railway companies had from their long experience found most suitable and had therefore adopted, did their best to erect a barrier between working the lines and developing them in the interests of the public. It was decreed that the cost of all the works of first establishment, i. e., upkeep and extension of lines, upkeep, increase and development of rolling stock, etc., was to be met from the resources of the main Budget, but the Receiver-General of the State Railways was to have no official cognizance of the amount of such expenditure. Since 1882 the ac-

counts of the State railways have been kept in a supplementary Budget, annexed to the main or general Budget, and in this way are subject to Parliamentary control. The net receipts from the railways are inscribed in the main Budget among the items of revenue derived from State industries. The expenditure on extraordinary work executed on the railways is not included in the supplementary Budget but in the main Budget in the expenditure of the Ministry for Public Works. The annual charges on the debt incurred in 1878 by the State, when the lines were purchased, do not appear anywhere separately, but are included in the general service of the public debt. It is, therefore, extremely difficult to ascertain what amount of profit, if any, the State derives from its railways.

Owing to their direct connection with and influence on the main Budget, the State lines were subjected to every sort of financial vicissitude, and no attention was paid to either the commercial character of the undertaking or to its obligations in respect of the public. In 1895 the Administrative Council of the State lines was abolished, and its powers were transferred to a Director, who, assisted by a Consultative Board, was immediately responsible to the Minister for Public Works. Such has been the system of administration up to the present time. From a financial point of view the administration of the State railways is a hybrid partaking of the character of a railway company and of that of an ordinary department of Government, and as such is said to have neither the elasticity of the one nor the *raison d'être* of the other. From an administrative point of view, the administration possesses an organization which in respect to certain questions resembles a company of which the Minister for Public Works and Parliament constitute the council of administration, and in respect to others is no more than a department of the Ministry for Public Works, performing the duties of a chief engineer. This régime has been criticized mainly for the three following reasons: Firstly, because of the complete subordination to the necessities of the general Budget of all annual expenditure required for development and improvement; secondly, because the ordinary resources of the Budget are burdened with expenditure on public works of which future generations only will reap the full benefit; thirdly, because of the confusion which exists between the State and the administration of the railways in regard to the constitution, to the development of the

equipment of the lines, and to the redemption of the loans devoted to railway purposes.

THE LAW OF 1908.

The financial system instituted in 1878, and amended in 1895, being generally condemned, the necessity of reorganization became urgent and obvious when the bill for the acquisition by the State of the Western railways was laid before the Chamber in 1906. It was impossible to preserve the same organization for a system of railways 8,913 kiloms. (5,570 miles) in length, and realizing annual receipts of over £11,080,000, as had served, and inadequately served, for working one of 2,967 kiloms. (1,855 miles), realizing only £2,360,000 per annum. A bill for remedying this state of affairs was drawn up by the Government in 1907, which was approved by the Budget Committee of Public Works, but time did not permit a discussion of the bill in Parliament, and it was ultimately dropped. Meanwhile, long discussions took place both in the Chamber and in the Senate in regard to the bill for the purchase of the Western railways. Both Houses agreed to the purchase, the difficulty was to find a satisfactory method of meeting the expenditure which the purchase and the working of the lines would entail. Finally, in July, 1908, a law was passed, of which Article 2 ran as follows: "A special law shall be made respecting the organization and administration of the lines. The financial measures for regulating all expenditure which the purchase and working of the lines will entail up to the date of the promulgation of this special law as well as the general conditions of the provisional administration shall be determined by a law." This last-mentioned law was passed in December, 1908, and provided that the Minister for Public Works should be charged with the provisional working of the lines until the special law was passed, which was to be by 31st December, 1910. The special law for definitely determining the organization of the purchased lines was also to fix the conditions under which the special account, authorized by the present law and secured on the proceeds of a loan, would be closed and redeemed. In accordance with the law of December, 1908, the supplementary Budget comprised all the working expenses which the Western Railway Company had borne and had met out of revenue, excepting the deficit to cover which application was made to the Government's guarantee of interest. The special account opened with the Treasury included all the working

expenses which the Company used to pay by means of loans. Short-term Treasury bonds were substituted for those loans. Details in regard to the purchase of the Western railways and the estimates of revenue and expenditure in the supplementary Budgets of 1909 and 1910 will be found in the reports on the French Budgets for those years.

PROPOSALS OF THE FINANCE LAW, 1911.

In spite, however, of the provisions of the law of December, 1908, the Finance Bill for 1911 provided not only for fresh expenditure in the special account for the purchased lines, but also for the opening of an analogous special account for the old State lines. The Budget Committee decided that they could not accept his proposal. Meanwhile, the Government laid the draft of the above-mentioned special law before the Chamber, but as time did not allow for the adequate discussion and the passing of the measure before the end of 1910, the Budget Committee suggested a solution of the difficulty that the provisions for definitely settling the administration of the Western railways should be incorporated in the finance law for 1911. To this the Minister for Finance agreed, and the necessary articles were inserted in the Finance Bill. The following is the substance of the articles in question:—

All State lines are to be under one administration, subject to the authority of the Minister for Public Works. Revenue and expenditure are to be inscribed in two supplementary Budgets, one for the old and one for the new system of State lines. Supplementary or extraordinary credits, which may be required in the course of the year, must be sanctioned by a law. When Parliament is not sitting, such credits are to be countersigned by the Ministers for Public Works and Finance, and submitted to Parliament for approval. Redeemable bonds will be issued by the Minister for Finance to meet expenditure on extraordinary works and to reconstitute certain reserve funds of the Western railways. These bonds are to be redeemable within fifty years, and are to be issued exclusively for the benefit of the State lines. The maximum amount to be issued in a year is to be fixed in the finance law. The charges connected with the purchase of the Western railways will be inscribed in the supplementary Budget. The annuities for which the State was responsible in virtue of its agreement with the railway company are, as heretofore, to be inscribed in the main Budget, and will be paid by the Treasury to the railway

administration. The State railways are to be administered, under the authority of the Minister for Public Works, by a Director and a Council. The expenditure will be controlled by an official appointed by the Ministers for Public Works and Finance. The Director and the Council, consisting of twenty-one members, are to be appointed by the Minister for Public Works.

HUMOR OF FRENCH TIMETABLES.

(From "The Standard," London, October 17, 1911.)

A novel method of promoting closer harmony between railway timetables and the actual running times of trains has been adopted by the West of France, State Railway. That the trains on most of the French lines rarely ever run to the scheduled time has long been notorious, but it appears that this little inconvenience has been satisfactorily overcome by the administration of the line mentioned above, and that in the simplest manner imaginable. If the trains will not run according to the timetable, what could be easier than to revise the timetable so as to keep pace with the lagging trains? Here is a scheme that the subtle "Bradshaw" probably never dreamt of, and hence, no doubt, its grim retention of that bewildering maze of mathematical facts—as they ought to be. For "Bradshaw" is no respecter of speed—or the lack of it. If a train is supposed to run from London to Birmingham in three hours, "Bradshaw" simply says so, and there's an end, even if the trains run twenty minutes late on each trip. But they have recently started arranging these matters better in France.

The new winter timetable of the West of France State Railway is not based on preceding issues, but upon the actual times occupied by trains in their respective journeys during recent months. This system is certainly much easier than going to all the trouble of accelerating the service, and has besides the extra advantage that the trains on that line at least will no longer be late. Whereas hitherto the stipulated times of departures and arrivals were purely mythical, they will henceforth be statements of fact, unless, of course, it should again become necessary to apply additional brake power to the—timetable.

Up to October 15, according to that statistical Münchhausen, travelers journeyed from Paris to Rouen in one hour and 45 minutes—metaphorically speaking—but now they will be able to make the trip in 2 hours and 6 minutes. Incidentally, this was the exact

time the expresses took before. The 7:50 p. m. train from Paris had contracted a habit of arriving 24 minutes late; that difficulty has been removed by starting the train 31 minutes earlier, which may enable it to arrive 7 minutes before time! The 5:11 p. m. from Paris used to reach—on paper—Saint-Sever at 7:25; henceforth it will depart 11 minutes earlier and reach Saint-Sever 13 minutes later than before! The 9:20 p. m., which was formerly booked to pass Rouen at 11:35, now leaves 20 minutes earlier and arrives 9 minutes later. There are numerous examples of the kind in this work of chronological art; let one more suffice: A fast train, hitherto intended to start at 5:40 and reach a certain place at 7:41, will in future start at 5:29 and arrive at 7:54—being respectively 11 minutes earlier and 13 minutes later!

A consideration of the new timetable seems to prove that State ownership of railways is not the ideal arrangement it is generally asserted to be. So far as France is concerned the experiment has been extremely disappointing from every point of view. Not only has the service been most unsatisfactory to the traveling public, but the financial results have fallen far behind reasonable expectations. Instead of improving with time, matters have gone from bad to worse. One has only to compare the enterprising policy of our own railway companies—all privately owned—with the best known examples of State lines to realize the beneficent influence of strong competition. Lack of competition invariably means lack of initiative and progress; there is no incentive to improvement, even where the necessity for it exists."

STRIKE AND LOCK-OUT LEGISLATION

(From *Engineering*, London.)

The appearance of a volume of memoranda* prepared by the Labor Department of the Board of Trade, and relating to legislation abroad having reference to lock-outs and strikes, is to some extent opportune, the more so as this collection of extracts of laws has especial reference to those forms of industry which come within the term "public utility services." For this term there is, as it happens, no exact definition. In the ordinary sense it might be regarded as covering all industries the temporary interruption of which would cause inconvenience or danger to the public. This, however, often appears to be too wide an interpretation. The actual term is, as a matter of fact, seldom used, and in those instances in which it is employed has very varied meanings applied to it. The public utility services are, in a general sense, supposed to include water supply, electric and gas lighting, means of public locomotion and communication, etc. It seems rather strange, in these days of hygienic propaganda, that with one exception, no specific reference, so far as we can find, is made so as to include sanitation within the term. How near akin this particular service is to those generally accepted as coming under the definition must be realized by all who read of the unfortunate conditions which prevailed in certain districts of Liverpool during the strike of August last. Instead of the term "public utility service," certain countries prefer to refer to these matters in another way. Reference is not made to the interruption of a service, but to interference with "necessary commodities." In New South Wales, for instance, and in New Zealand, special conditions are imposed with respect to workers connected with supplies which have become necessities of life. In the former, in addition to gas and water supply, special conditions are imposed on workers connected with the coal industry and with the supply of "any article of food, the deprivation of which may tend to endanger human life or cause bodily injury." The supply of electricity is not specifically mentioned. In New Zealand special conditions cover a wider scope—coal supply, electricity, coal-gas, water, milk, slaughtering and supply of meat, and the working of means of public communication. Canada brings mining within the class requir-

ing special conditions, since effects of the disturbance of the mining industry are so widespread.

The form taken by legislation connected with lock-outs and strikes of all sorts varies immensely. It ranges, on the one hand, from complete prohibition, to the prohibition of such actions merely during any official attempt to bring about a settlement of the dispute. Nine European countries have legislation designed to avoid strikes of employes engaged in public utility services, and of these, five absolutely prohibit such workers to strike. In three other European countries strikes are illegal unless regulations requiring notice, etc., are complied with. In other countries the limitations imposed on strikers merely relate to the completion of a task in hand, but in others strikes are indirectly rendered impossible in public services owing to the attitude of the Government towards unions and such-like organizations.

So far as British dominions are concerned, legislation in this direction has gone furthest in Australasia. Each of the various States comprised in the Commonwealth and the Dominion of New Zealand has its own laws; and, in addition, since federation, a Commonwealth law has likewise been brought into being having reference to disputes which affect more than one State. Such disputes, if it be in the public interest to do so, are to be settled by a Court which has power to make an award. For the purpose of enforcing such awards, penalties may be inflicted, and these may be executed against the property of an organization. If the funds of the organization are insufficient, individual members may be proceeded against. Several of the individual States follow similar lines connected with the working of Conciliation Boards or Arbitration Courts.

In Western Australia an Act providing for the settlement of disputes by conciliation and arbitration is in force. Under it, it is illegal to bring about a strike or lock-out. The Government employes on the railways of this State are organized and are dealt with by the Government as an industrial union, and seven industrial agreements entered into by the Railway Commissioners with the employes were in force at one time recently. Inciting to strike is illegal, and trade-union officials have been sentenced in this connection to fines of as much as £50. The New South Wales legislation provides for the settlement of disputes in various industries, and especially is intended to cover the conditions relating to workers connected with the supply of "necessary commodities," a definition

of which has been given above. Decisions of the Boards or Courts are liable to enforcement. Penalties up to £1,000 per individual can be imposed for taking part in a strike or lock-out, or in default, two months' imprisonment. Twelve months' imprisonment can be given to persons inciting others to strike. Meetings for the purpose of instigating or managing a strike or lock-out are illegal and persons taking part in them are liable to twelve months' imprisonment. The most interesting strike in New South Wales of recent years was the great coal strike of 1909-10, during which several leaders of the men were arrested, and sentenced to eighteen months' hard labor, and a large number of lodge officials were sentenced to fines of £100 each, and in default of payment were sent to prison.

In South Australia the penalty for an organization guilty of causing a strike or lock-out is £500 and for an individual of £20. In default of payment imprisonment is inflicted. Tasmania also has its strike and lock-out legislation, while provisions are also made in Victoria with a like preventive object. In the latter State, however, the strike is not declared illegal; but in the event of a strike, or a determined movement to strike, a wages board award may be suspended by the Governor. The State railway employes come in for special provisions, by which, if they strike, they forfeit all rights to pension, gratuity, compensation, superannuation, or retiring allowance, and are liable to dismissal, though reinstatement may be granted. Queensland has wages boards in operation, but no restrictions on the freedom to strike or lock-out are imposed.

New Zealand has, perhaps, had more legislation of this kind than other countries. The reference of industrial disputes to councils of conciliation is obligatory. The Government railway servants are dealt with as an organized union by the Minister of Railways. Workers who are party to a strike while an industrial agreement affecting them is in force are each liable to a fine of £10, and employers who are party to a lock-out are, under similar circumstances, liable to a fine of £500. Outside persons instigating a strike are liable to fines of £200. Special penalties of a rather heavier rate are imposed in the case of strikes connected with certain specified industries, the interruption of which would cause public inconvenience. It appears that 80 per cent. of the fines inflicted on strikers and employers have been collected in New Zealand.

In Canada legislation partakes of an altogether different character. It makes provision for the appointment of a Committee of Conciliation in case of a "difference" likely to lead to a strike. The Committee is appointed by the Minister for Labor, on his own motion, or at the request of a municipality affected. The Committee has power to investigate and report publicly. Strikes, pending reference to a committee or during investigation, are illegal. This legislation now refers to railways, the mining industry, etc. Penalties are inflicted for going on strike or locking-out, or inciting to either during these proceedings. Prosecutions have been instituted under these Acts. In some cases employers have been fined for lock-outs, in others union officials for inciting to strike.

In Nova Scotia a lock-out or strike is forbidden pending settlement under the Miners' Arbitration Act. In Ontario Councils of Conciliation exist, but there is no penalty for, nor prohibition of, strikes and lock-outs. In the Transvaal the Act adopted operates something after the manner of the legislation in Canada, and has special reference to the prevention of strikes in the mining industry, public services, and trades to which the provisions may be specially applied, of which there are at present fifteen. Prohibition of lock-outs and strikes pending investigation and report is enforced by means of penalties consisting of imprisonment, or of fines for each day during which the strike or lock-out may be in operation. Officials of companies and unions can be proceeded against.

In the United States, generally speaking, the individual States recognize the right to strike, and picketing, so long as it remains of a peaceful character, it is not interfered with. Intimidation, however, is illegal. The railway employes do not come merely under State regulation. When serving corporations engaged in inter-State business, they are under the supervision of the Federal authorities, and several Federal laws interfere with their freedom in this direction. Three such laws are considered to bear on this point. The first is the Federal Anti-Trust Act of 1890, which forbids every contract, combination, or conspiracy in restraint of inter-State trade. Though introduced originally to check the activities of capital, it is now taken as applying likewise to combinations of labor. The second Act of importance is the Obstruction of Mails Act, which makes it illegal to obstruct the mail service. The third is the Inter-State Commerce Act, which requires carriers to afford all reasonable facilities for the interchange of commerce. Actions which interfere with

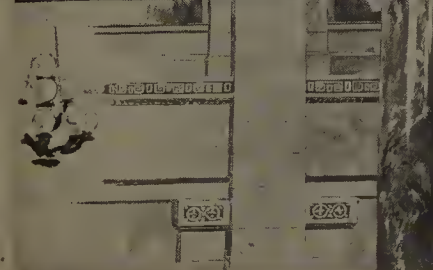
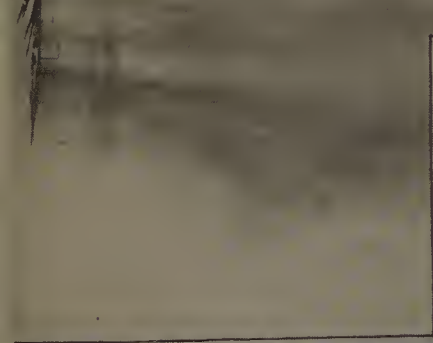
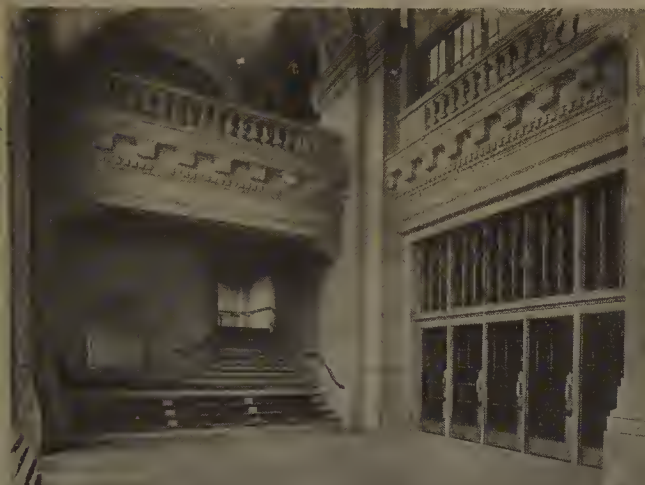
this are illegal. In addition, there are several State laws prohibiting the abandonment of trains, locomotives, etc., before arrival at destination.

Among European countries, restrictions in France amount to little more than provision in this last direction. Employes may not abandon trains during a journey. This provision ensures some of the dangers of a sudden strike on the railways being avoided. Many countries are, however, much more severe. In Russia peacefully conducted strikes are no longer punishable, except those connected with Government services or public utilities. They are forbidden in the railway, telegraph, and other services, and strikers, or persons inciting to strike, are liable to imprisonment. Intimidation is also discountenanced and punished in like manner. Agricultural laborers guilty of striking are also liable to imprisonment. In Denmark there is a permanent arbitration court and a Government conciliator; to act in violation of an award or agreement is illegal.

In Germany the right to strike exists, but does not extend to municipal undertakings, such as gas and water supply, nor to railways, etc. Freedom to work is provided for. As regards the State employes, the ability to strike is practically withdrawn by the strictness with which surveillance is conducted with regard to industrial unions. Membership is strictly forbidden of any union which is deemed to be working in a direction inimical to the interests of the State. The official oath is supposed to have been violated in the case of such a man, and he would be dismissed from the service. On the Prussian and Hessian State Railways the rules insist on applicants holding themselves clear of unions or movements inimical to public order, and like regulations are in force in other States, so that now about 90 per cent. of the organized railway employes belong to unions which have waived all claim to the right to strike. In Austria the public services are protected by controlling the formation of the unions. The formation of a union is not sanctioned if its aims are thought to be dangerous to the State. An organization of this type would be dissolved and its funds seized. In that country railway employes have enforced their demands by complying strictly to the letter with all rules governing the service and operation, thereby delaying traffic intentionally. This action is now regarded as a breach of the official oath no less serious than combining to strike.

The right of employes in the public services in Italy to strike is also withheld, but by adopting methods similar to those just referred to in the case of Austria the employes on the railways have obtained some of their demands. Soldier labor can be used in Italy if need be, and universal service enables the Government to meet the needs of the public in case of extreme emergency.

In Holland there is a special law preventing the striking of railway employes. In Belgium railway and public service employes may belong to unions subject to proper regulations. In Spain and Portugal strikes are not illegal if certain notice is given beforehand. In Turkey the formation of trade unions in establishments carrying on public services is forbidden. To ensure the continuance of such services the employment of public forces may be used if necessary. In Roumania no State or public employe may join a trade union without first obtaining leave. In Switzerland the law regards striking from rather a negative point. If an employe is guilty of negligence, or, for set purpose, does not properly fulfil his duties, he may be fined.



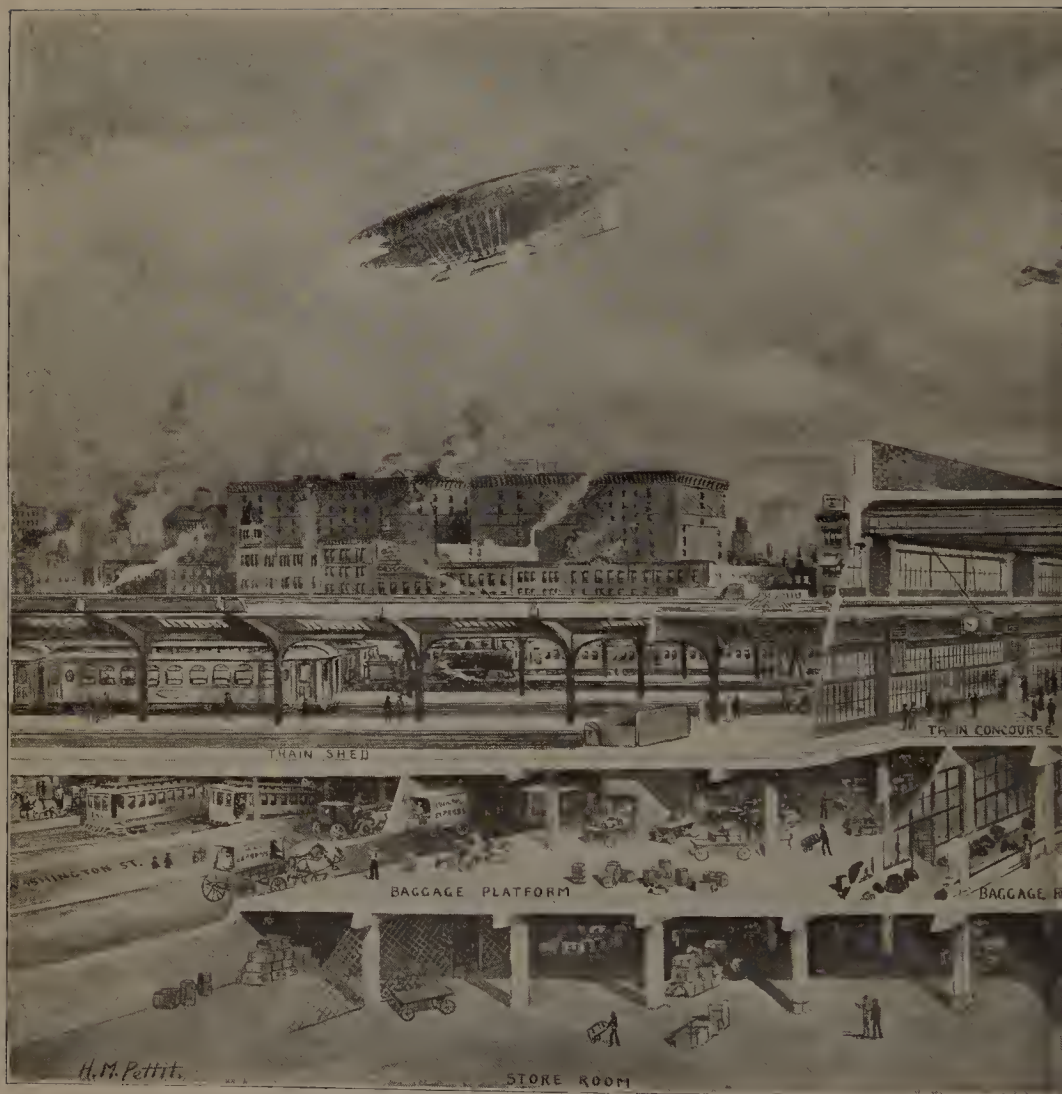
Auxiliary Stairway, Clinton St. Entrance

Street-level Lobby and Ticket Office

Parcel and "Lost and Found" Booth

Madison St. Vestibule and Side Stairway

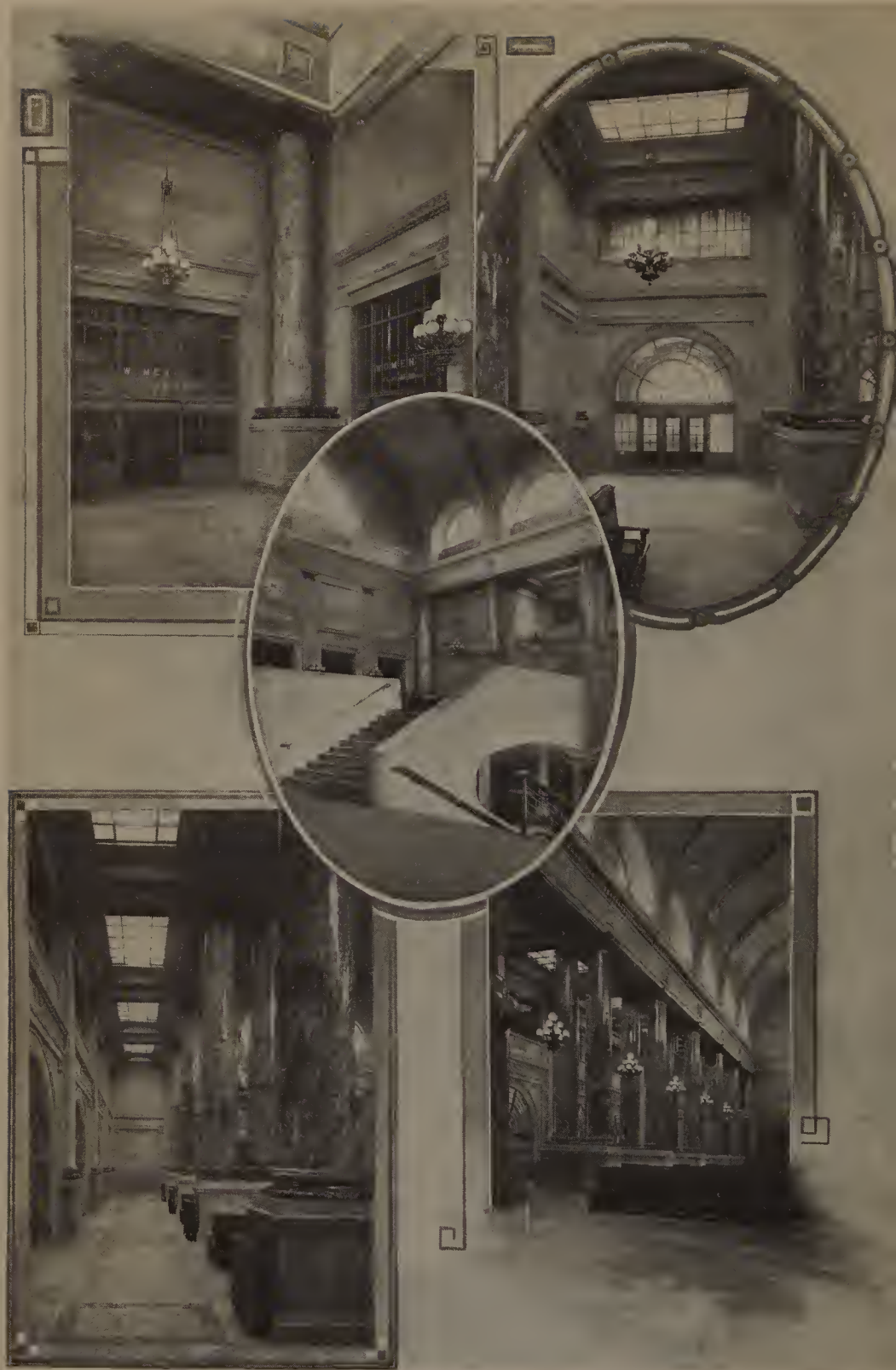
Street-level Lobby, with Elevators and Carriage Entrance



Sectional view of the Station from the west,



n divisions and elevations as marked thereon



Stairway into and four views in Main Waiting Room

CHICAGO'S GREATEST PASSENGER STATION

Three quarters of a century after the grant of the original charter to the Galena & Chicago Railroad Company, with which it was consolidated in 1864, the Chicago & North Western Railway Company, on June 4, 1911, went into possession of the magnificent new modern passenger station which it had erected west of the Chicago River, facing Madison street, six city blocks south of the site of its first passenger station. Imposing and complete as is the new station and train shed, covering three full blocks, the acquisition of the location and diversion of the approaches to it for all passenger trains coming from the North, Northwest and West divisions of the road, involved the most difficult problems and absorbed more than two-thirds of the cost, the approximate figures of which were:

Real estate and legal expenses.....	\$11,560,000
Station building and train shed.....	6,380,000
Power station building and equipment....	810,000
Elevated approaches	5,000,000
<hr/>	
Total	\$23,750,000

The station building proper extends from Canal to Clinton Street on the north side of Madison, 320 by 218 feet, and is four full stories high. Its walls are of gray Maine granite, as are the six forty-foot columns that mark the noble Doric portico on Madison Street.

For the general outlines and surroundings of this building, and some of the details, the reader is referred to the accompanying illustrations. The main lobby of the station, entrance to which may be by the portico just mentioned or through spacious doors on Canal and Clinton Streets, occupies the entire ground floor. Here are located the ticket offices, information bureau, telephone booths, travelers' supply and drug store, telegraph offices, lunchroom, cab and motor car offices, lost and found department and the parcel checking room. North of the lobby extends a most complete department for checking "in" and "out" baggage. Under the train shed further north is the Canal Street station of the United States Post Office, to which mail is carried direct from trains by means of an

endless belt between the tracks. These form a covered way over Washington and Randolph Streets.

The main waiting room, which is reached from the lobby by numerous elevators and stairways, besides the grand central staircase, is architecturally described as embodying the idea of a Roman atrium—that is to say, it is a spacious court lighted mainly from above and opens into other rooms on one or more levels. Its sides are finished in Tennessee marble of a delicate light pink shade and the columns which support the high, vaulted roof are of green Cippolino. The ceiling is of self-supporting tile construction, with ribs of terra cotta, ornamented with symbolic signs. The whole tone and effect of this atrium are very restful. On the west end of this court are found the main dining room and a separate waiting room for ladies. At its east end are the barber shop, news stand, smoking room and public and pay toilets.

Opening out of the main waiting room through numerous doors, lies the train shed concourse across the entire width of the building, and beyond, still to the north, are the train platforms for sixteen tracks. The concourse is separated from the train shed by a glass partition and can be heated in winter to a temperature of 60 degrees.

In minute attention to the comfort and convenience of travelers, the new station resembles a great modern hotel—except in the absence of sleeping apartments. Its generous provisions for the shelter and handling of immigrants are particularly noteworthy. The accommodations specially set apart for them would themselves be considered more than satisfactory by the average cosmopolitan tourist.

The development of the plans for this splendid terminal was begun in December, 1905, under the direction of Marvin Hughitt, then president and now chairman of the company. How they were carried out has been described by W. C. Armstrong, the terminal engineer in charge for *The North Western*, as follows:

CONSTRUCTING A GREAT STATION.

On the first of November, 1906, I began my duties as terminal engineer in charge of the construction of the new passenger terminal in Chicago. The work of preparing maps, collecting data, and making preliminary designs had been going on for about a year, and the general features of the scheme had been pretty well determined.

The site of the station building had been chosen, the location and extent of the station yard had been fixed, the location of the approaches with the number of tracks needed had been decided, and a general outline of the scope of the work had been made public only a few weeks before.

I had not been connected in any way with the early studies of the plans and my only knowledge of these plans was that gained from the published accounts in the daily papers, when the information was given to the public. My first duty, then, was to learn what I was expected to do.

An interview with the chief engineer, Mr. Carter, gave me a general idea of the work to be done and the extent of my duties in respect to this work. I was given a copy of the maps which had been prepared covering the territory involved in the project and copies of such preliminary plans as had been made up to that time, and was instructed to take up the work at that point, develop the further studies that were necessary in connection with track arrangement, retaining walls, street viaducts, station yard, train shed and all the various facilities to be provided.

Following this interview I walked out over the site of our proposed operations, and it was only then that I began to comprehend the real magnitude of the undertaking.

From Madison Street to Milwaukee Avenue, between Canal and Clinton Streets, now within the enclosing walls of the station proper, were solid rows of brick buildings from one to six stories in height. Many of them were historic buildings, identified with the early history of Chicago. At the corner of Madison and Clinton Streets stood the old Gault House, a famous hostelry in the early 70's. At the corner of Madison and Canal Streets was the Grand Central Hotel. It had perhaps been aptly named, but its "grandeur" had long since passed away. Along Canal and Clinton Streets were numerous machinery companies and concerns dealing in iron and steel and heavy hardware. The Ryerson iron and steel warehouse occupied the site of the present power house.

North of Fulton Street was a large four-story brick building occupied by the Miehle Printing Press Company, and between Carroll Avenue and Kinzie Street was a large, newly built brick structure five stories high, owned by the Tyler Hippach Plate Glass Company.

Over the north and west approaches were numerous larger factory buildings, tenement houses and residences. All of these buildings had to be removed before construction operations could be begun. In all there were 455 buildings to be removed. Sixty-six of them were four stories or more in height.

On Lake Street the Chicago & Oak Park Elevated structure was an obstruction to the tracks into the terminal, which in some way had to be removed. The entire terminal territory was covered with a network of telegraph, telephone and electric light wires which had to be disposed of and rearranged. In the streets were sewers, water pipes, gas pipes and electric conduits which would interfere with street viaduct foundations and necessitate a change in their locations. The clearing of the right-of-way, and removal of the various obstructions, both overhead and underground, was in itself not a very simple matter.

Some knotty problems in design and construction were presented. In Carroll Avenue and just south of it, the P., C., C. & St. L. Ry. tracks were to be crossed. In addition to their two main line tracks were four freight house tracks, a freight house and teamway. Our tracks had to be carried overhead and all their freight handling facilities had to be maintained. This required that the freight house be rebuilt under our structure, that the teamway and house tracks be preserved, and that our structure be of such permanent, solid and waterproof nature as to form a perfect roof over all these facilities.

At Kinzie Street and between Kinzie and Jefferson Streets the terminal structure would have to be carried over a perfect network of Northwestern surface tracks. This was the junction of the Galena and Wisconsin division surface tracks and the tracks of the Grand Avenue coach yard.

On the north approach the terminal structures in many cases had to be designed to cross over the intersection of two streets, which added greatly to the complication. At the extreme west end of the west approach, where the terminal tracks connect with the Galena division tracks, another complicated structure was to be worked out.

But the most serious difficulty to be faced was the fact that all the construction operations had to be carried on in a territory of congested traffic. Hundreds of carloads of materials would have to be brought into the terminal territory and distributed to the

various working crews. To get this material in without delaying regular trains and without delay to the workmen appeared to be a very serious problem as viewed from the outset of work. Had the scene of operation been a few miles outside of the city limits, the difficulties would have been reduced by fully one-half.

A force of draftsmen was organized and work was started on preliminary plans of the various structures and track arrangements. Numerous plans were drawn tentatively, studied, discussed and discarded, their meritorious features, if they had any, being embodied in more acceptable plans which were afterwards drawn and again subjected to consideration and discussion. By this process of elimination the final plans were agreed upon, but not in many cases until the plans had been redrawn many times over. This was particularly true of the track and switch layouts, station yard tracks and platforms, train shed, and some of the special steel structures. The entire year of 1907 and a considerable part of the year 1908 was devoted to the preparation of plans, although the final plans for many of the structures were completed and ready for construction long before they were all finished.

While the work on plans was in progress, the work of wrecking and removing buildings and clearing the right of way ready for construction was also going on. As soon as the right of way negotiations for any piece of property were concluded and we obtained possession, the buildings were sold to the highest bidder, on the condition that he remove them completely in the shortest practicable time. In nearly all cases the buildings were wrecked, although some of them were removed bodily to other sites. A notable example of the moving of a building was that of the five-story brick block owned by the Tyler Hippach Plate Glass Company. The railway company purchased this building and had it moved a distance of 220 feet. The moving was successfully accomplished, without a single crack in the walls or even the loosening of a brick. Another instance of successful moving was an apartment house on Austin Avenue. It was cut in two parts, and each part moved separately a distance of over a quarter of a mile, where they were again put together into one structure.

As I have previously stated, the Chicago & Oak Park Elevated structure in Lake Street formed an obstruction to our tracks entering the new station yard. It was too high to pass our tracks overhead, and too low to pass them underneath. It could not be low-

ered, for that would obstruct traffic on the street. It only remained to raise their tracks higher, and to substitute some other type of construction in place of the numerous column supports which would have been an obstruction to the large number of tracks and switches we had planned to have at that point.

To obviate the entire difficulty, the original elevated structure was removed completely for a distance of 155 feet and a truss span substituted at a higher level, making room underneath this span for all the tracks entering the station yard.

As the tracks on this span were about five feet higher than they were on the original structure, it was, of course, necessary to raise the tracks at either end of the span to meet the increased height by an easy incline in each direction. This was done by jacking up the elevated structure and lengthening the columns supporting it by splicing to them short sections of varying lengths corresponding to the amount the grade was to be raised. This change in the grade of the elevated road covered a distance of about 2,000 feet, extending from Union Street to the Chicago River. It was the first piece of actual construction work done on the terminal, and was begun in June, 1908.

The work of building retaining walls, abutments and foundations for street viaducts on the new terminal approaches was commenced in September, 1908. Fortunately, the winter of 1908-9 was very mild and the work of mixing and placing concrete in these walls was carried on almost continuously during the winter months, so that the spring of 1909 found us with a large proportion of the foundation and retaining wall work on the west approach and the terminal proper finished.

But the year 1909 was the period of greatest activity. Work of all kinds was being pushed as rapidly as materials could be assembled and men could put them in place. Pile drivers were in operation over all sections of the work. Gangs of men were excavating for the foundations of various structures. Carpenters were busy building concrete forms. Concreting outfits were mixing and pouring concrete into the finished forms. Structural steel erection crews were assembling the steel work for street viaducts and for the track structure and train shed in the station yard. Trainloads of sand were being unloaded for embankments where the retaining walls had been finished. Track gangs were laying tracks and switches where the banks were completed. Various other work was

in progress, such as laying drain pipe, waterproofing viaduct floors, building electric conduits, paving streets and laying cement sidewalks.

In many instances work was in progress night and day, the crews working in three shifts of eight hours each. During the busiest portions of the season there was an average of 2,500 men at work, including labor of all classes. In the engineering department about fifty men were employed, including draftsmen and the other office employes, assistant engineers, instrument men, rodmen and inspectors.

By the close of the year 1909 most of the concrete retaining wall work had been finished. There was still a large amount of steel work to be completed, particularly in the track floor and train shed in the station yard. There also remained considerable sand filling to be completed. Only a small proportion of the permanent track had been laid, and very few permanent switches had been placed.

Practically all of the electric conduits were yet to be built, and the signal and interlocking work had not yet been started. The vast areas of track floor on steel work in the station yard were yet to be covered with concrete and waterproofing.

It is true that great progress was made in the year 1909. But it was the work that made a good showing—the larger things that appealed to the eye of the casual observer. We were now coming to the more intricate and tedious details—the “finishing touches,” so-called. A few weeks' work on a large retaining wall was quickly noted by the passerby, while the same amount of work on an underground conduit would fail to attract his attention.

Some idea of the extent of the work may be gained from the following statement of

AREAS, DIMENSIONS, ETC.

Station building, 320 ft. by 218 ft.....	69,760 sq. ft.
Station yard, 320 ft. by 1,072 ft.....	343,040 sq. ft.
Trainshed roof	265,800 sq. ft.
Right-of-way acquired	37 acres
Ground area of buildings wrecked.....	20 acres
Number of tracks in station yard.....	16
Total length of yard tracks.....	14,330 ft.
Total capacity of yard tracks.....	200 cars
Number of tracks in station approach.....	6
Number of passenger platforms	8
Width of platforms	16 ft. 9 ins.
Aggregate length of platforms.....	7,160 ft.
Number of streets bridged	40
Number of alleys bridged	13

The magnitude of the construction operations are fairly represented in the following statement of

QUANTITIES OF WORK.

Excavation for foundation	250,000 cu. yds.
Piles driven, 43,000	1,530,000 lin. ft.
Concrete	275,000 cu. yds.
Structural steel	37,000 tons
Waterproofing	665,000 sq. ft.
Conduit pipe	220,000 lin. ft.
Curbing	23,000 lin. ft.
Cement sidewalk	240,000 sq. ft.
Paving	50,000 sq yds.
Tracks	18 miles
Single switches	82
Lap switches	4
Double slip switches	39
Crossings	6

An array of figures usually produce little impression on the average reader. They are lacking in that vividness necessary to fix and hold his attention. The popular magazine writer would have presented these in a way to cause the reader to "sit up and take notice." He would have given the various areas in square inches. He would have called attention to the fact that the cement used in concrete would have filled a train of box cars twenty miles long; that the gravel and sand for same would have filled a train of gondolas seventy miles long; that the piling driven in foundations would have built forty miles of pile trestle; and if all the piles had been laid out end to end they would have made a line 290 miles long, and would have reached from Chicago to Marshalltown. But an engineer's story of an engineering project should contain no such illuminated statement. His professional dignity forbids.

It must therefore be left for the reader to form his conception of the magnitude of the work from the cold figures above presented. If he has had personal experience in such work he may be able to read between the lines and thus more fully realize what expenditure of mental and physical energy and what burdens of responsibility these figures represent.

FINED FOR SQUARE DEALING*

(From the Iron Trade Review, Cleveland, Ohio, March 28, 1912.)

The acceptance by the government of pleas of *nolo contendere* by the eight railroad and dock companies involved and the quashing of the indictments returned against Dan R. Hanna and R. L. Ireland of M. A. Hanna & Co. and D. T. McCabe of the Pennsylvania Company, together with the imposition of fines, brought to a close Saturday, March 23d, the government's suit, begun a year ago, against certain ore handling railroad and dock companies and individuals on charges of rebating and conspiring to rebate.

The hearing was held in the District Court at Cleveland before Judge John M. Killets, and the decision to accept the pleas of *nolo contendere* and the dismissal of the cases against the individuals followed the receipt of a recommendation from Interstate Commerce Commissioner Franklin K. Lane, and endorsed by Attorney General George W. Wickersham, that such a procedure should follow.

The indictments were returned a year ago as a result of an investigation by the Interstate Commerce Commission of the practice of the companies involved in returning certain allowances to shippers, the money being derived from the excess earnings of the dock companies.

Immediately upon the opening of court, the pleas of *nolo contendere* were entered by the representatives of the companies. A number of the counts against the Lake Shore & Michigan Southern Railway Co., the Bessemer & Lake Erie Railroad Co., and the New York, Chicago & St. Louis Railroad Co. were nolle.

Mr. Denman read to the court a letter from Attorney General Wickersham, endorsing and enclosing the recommendation from Commissioner Lane, which was also read. Mr. Lane, in substance, wrote that he believed the imposition of fines against the railroad and dock companies and the dismissal of the cases against the individuals would best satisfy justice. After reciting the points covered

*The conclusion of this case and the vindication of the indicted officials is reprinted here because the indictment was blazoned to the ends of the earth and the vindication scarce got beyond the four walls of the court where the "truth made all things plain."

by the indictments, he stated that the negotiations which had been carried on for some time between the commission and the companies had determined that in the future the railroads would operate the docks and might employ agents, who were not consumers of ore. He expressed the belief, formed as a result of the Commission's investigation, that the individuals indicted had striven to correct the abuses of the leasing system and could not be held responsible for the evils which had grown up and had now been done away with.

Mr. Wickersham, in his letter read to the court, endorsed the findings and recommendations of Commissioner Lane.

Mr. Rush C. Butler, attorney for the defendants, then gave the following resume of the practices that had led to the indictments:

MR. BUTLER'S ADDRESS.

"On behalf of D. T. McCabe, Dan R. Hanna, R. L. Ireland, the Pennsylvania Co., and the Ohio & Western Pennsylvania Dock Co., the defendants in case No. 3458, indicted under section 5440 for conspiracy to violate the Elkins act, and on behalf of the Pennsylvania Co., defendant in case No. 3465, indicted for violation of the Elkins act, I desire briefly to call to the court's attention the history of the handling of ore over Lake Erie docks, with particular reference to the relationship between the Pennsylvania Co., its docks, and shippers of ore over its docks via its lines. A knowledge of these conditions is necessary to a fair consideration of the specific facts upon which the indictments are based.

"As early as the year 1890, certain shippers of ore over other lines than those of the Pennsylvania Co. had associated themselves together, as they had a right to do, either in co-operative companies or by the organization of corporations for the more satisfactory handling of ore over docks at Lake Erie ports and for the enjoyment of the net profits arising therefrom. These arrangements, while not contrary to the provisions of any law on the statute books as then interpreted, necessarily created preferences in favor of the shippers of ore who were parties thereto. Shippers of ore via the Pennsylvania lines enjoyed no such preferences, as the Pennsylvania Co.'s docks were operated by contractors who were not shippers of ore. This discrimination against its ore shipping patrons caused the Pennsylvania Co. to announce on May 1, 1891, by a public circular addressed to 'Consumers of Iron Ore,' that in order to place consumers of ore moving via its docks on an equality with

consumers of ore passing over the docks of other lines via Lake Erie ports, the Pennsylvania Co. would thereafter cause to be divided among all consumers of ore whose shipments were handled over its docks the net profits which might arise from the operation of such docks, the division of such profits to be in the ratio that the number of tons handled and transported over the Pennsylvania Co.'s lines for each consumer bore to the total tonnage so handled. The notice of May 1, 1891, was given wide distribution among shippers and consignees of ore throughout the entire territory reached by the Pennsylvania and other lines from Lake Erie ports, so that all consumers of ore were fully advised that if their ore passed over the docks of the Pennsylvania Co., not only would there be no discrimination by the Pennsylvania Co. as between any shippers of ore over its own lines, but also that the discrimination theretofore existing in favor of the certain ore shippers enjoying the profits of the operation of docks belonging to other carriers would be reduced to a minimum. The policy announced by the Pennsylvania Co. in the published notice of May 1, 1891, has been consistently followed up to the present time and, so far as it was within the power of the Pennsylvania Co. so to do, the ore which has passed over its docks has been kept upon an equality with the ore passing over the docks of other carriers at Lake Erie ports.

WONDERFUL INCREASE OF TONNAGE.

"The first ore delivered by vessels at Lake Erie ports was unloaded by shoveling it into tubs or half barrels in the hold of the vessel, then hoisting the tubs or half barrels by horse power, dumping the ore into wheelbarrows at the vessel's side and wheeling it to the cars or to storage piles on the docks. As years passed by, the receipts of ore at the docks of the Pennsylvania Co. grew from 22,000 tons in 1862 to nearly 800,000 tons in 1890, and to more than 3,000,000 tons in 1907. This tremendous increase in ore tonnage was necessarily accompanied by an evolution in ore-handling machinery, so that, whereas in 1890 it required four or five days' time to unload a vessel carrying 3,000 tons of ore, at the present time a vessel carrying 10,000 tons of ore can be unloaded in four or five hours.

"The profits from the operation of the docks arise from two sources: First, the vessel unloading charge, meaning thereby the amount paid by the vessel for lifting the ore from the hold and carrying it to the vessel's rail; and, second, the charge paid to the

dock company by the railroad company for transporting the ore from the vessel's rail and placing it either directly on the car, or first onto the dock for temporary storage and later onto the car. During the period under consideration, that is, from 1890 up to the present time, the amount collected by dock companies from vessels for unloading has varied from $13\frac{1}{2}$ c to 22c per ton, the usual charge being 20c. The customary charge by dock companies to rail carriers for carrying the ore from the vessel's rail to on board cars, whether direct or via the dock, was 20 cents per ton. The aggregate charge of the dock company, therefore, against the vessel and the rail carrier varied during this period from $33\frac{1}{2}$ cents to 42 cents per ton. During the years 1908 and 1909 the dock company's charge to vessels was 20 cents and to the rail carrier 20 cents, making its aggregate charge during these years 40 cents per ton.

"At about the time the circular of May 1, 1891, was issued by the Pennsylvania Co., careful calculations were made by the company based on its past experiences as to the net profits arising from its dock operations, and it was ascertained that, taking one season with another, there was a net profit to the dock company of about 12 cents per ton on direct ore, that is, ore handled directly from vessels to railroad cars and forwarded at once to destination, and a net profit of about 5 cents per ton on dock ore, that is, ore on which immediate forwarding from the vessel was not desired by consumers, and which consequently had to be unloaded and stored on the dock and later on, at the convenience of the consumer, reloaded onto railroad cars and forwarded to destination. Accordingly, beginning May 1, 1891, the Pennsylvania Co. began paying currently, that is, monthly, to consumers of ore handled over its docks allowances of 12 cents per ton on direct ore and 5 cents on dock ore, which were in the nature of rebates on the freight rate paid by consumers. These allowances were made to all consumers of ore without preference or distinction, and insured exactly equal treatment to all patrons of the Pennsylvania Co. The payment of these allowances was subsequently published in the tariffs of the Pennsylvania Co. and was continued from May 1, 1891, up to the first day of August, 1909. (NOTE: On August 1, 1909, almost two years before the indictments were brought in, reduced rates on ore from Lake Erie ports were published by all roads, and all refunds account of dock operations were discontinued.) All other carriers reaching Lake Erie ports, it is understood, made

the same allowances to all consumers on their lines; but some of the carriers, in addition to making such allowances, in order to secure the efficient management of their docks, permitted certain consumers of ore to operate the docks and reap the benefit of the net profits arising from such operation, to which we shall now refer.

INEQUALITY EXPLAINED.

“For several years after May 1, 1891, the allowances of 12 cents and 5 cents per ton above referred to represented approximately, if not actually, the net profits of the dock operations; but, beginning perhaps as early as the year 1905 or 1906, the increased tonnage handled over Lake Erie docks, together with the improvement in ore-handling machinery, caused the accumulation of additional surpluses or net profits at the end of each year after paying the 12-cent and 5-cent allowances. In other words, the profits of the dock operations began at about this period to exceed the allowances of 12 cents on direct and 5 cents on dock ore which all carriers had been paying to shippers via their respective lines. *In the case of the Pennsylvania Co., all such additional surpluses or net profits went into the treasury of that company.* In the case of some of the other carriers, such surpluses or net profits went to the dock companies. Therefore, consumers of ore whose shipments passed over the docks of the Pennsylvania Co. were no longer on an equality with consumers who were interested in dock companies on the lines of some of the other carriers.

“Being desirous of distributing the *entire* profits of its dock operations ratably among the consumers of ore on its lines, and in pursuance of its long continued policy that ore shipments handled over its docks should be on an equality in so far as it was within its power so to make them with ore shipments handled over the docks of other carriers, the Pennsylvania Co. entered into a contract effective April 1, 1908, by the terms of which the Ohio & Western Pennsylvania Dock Co. was to operate the docks of the Pennsylvania Co. at Lake Erie ports. By the terms of this contract, the dock company was required to distribute ratably among all consumers of ore on the Pennsylvania lines the entire profits of the operation of said docks during the existence of said contract, and this in *addition* to the published tariff allowances of 12 cents on direct and 5 cents on dock ore, which the company also required the dock company to pay. It was obviously impossible to ascertain until after the close of any one year what the exact amount of such net

profits would be. *This rendered it impossible for the Pennsylvania Co. to state in its published tariffs the exact amount that would be repaid to consumers.*

"It was believed by the officers of the Pennsylvania Co. that in making such an arrangement for the distribution of the profits of its dock operations, the broad spirit of the provisions of the act to regulate commerce was being carried out, as such an arrangement guaranteed to every consumer whose ore passed over the docks of the Pennsylvania Co. that he would be treated with strict impartiality, whether his shipment amounted to one carload or hundreds of carloads. *Publicity of this contract and of its contents was assured by the fact that the compensation of the dock company was upon a per ton basis, and it is not at all probable that there was a shipper or consumer of ore in the entire territory reached by the lines of the Pennsylvania Co. who was not fully aware of the new arrangements made for the distribution of those net profits.* Counsel advised that it was not necessary to make reference in the tariffs of the Pennsylvania Co. to the proposed disposition of the possible surplus; that the rights under the law of each individual consumer of ore were properly and legally safeguarded, and unjust discrimination of every character absolutely avoided.

"The indictments returned in this court against the Pennsylvania Co. and the Ohio & Western Pennsylvania Dock Co. are predicated upon payments made to consumers of ore of the net profits of dock operations from April 1, 1908, to August 1, 1909, as provided by the terms of the contract referred to. The indictment against D. T. McCabe, Dan R. Hanna and R. L. Ireland was returned because of the fact that their signatures appeared upon the contract, Mr. McCabe signing on behalf of the Pennsylvania Co., Mr. Hanna on behalf of M. A. Hanna & Co., and Mr. Ireland as a witness to Mr. Hanna's signature.

"It is upon this statement of facts that the indictment against the individual defendants is justifiably nolle by the Government. It is also upon this statement of facts that the Pennsylvania Co., under advice of counsel, is now constrained to enter its plea acknowledging a technical violation of the Elkins act, and that the Ohio & Western Pennsylvania Dock Co., under like advice, and in order to terminate this criminal proceeding in an amicable manner, enters its plea of *nolo contendere*, vigorously denying its guilt, as well as the willful or intentional wrongdoing, of any of its officers

or agents. It is emphatically asserted by all these defendants that there was no purpose or intention to do wrong to any person or injustice to any locality, and it is even more emphatically maintained that the liberal provisions of the contract in question were in furtherance and not in contravention of the general purpose of the act to regulate commerce. And in this view we are pleased to know the high officials of the United States Government, charged with the duty of enforcing the act, concur."

Judge Killets then accepted the pleas of *nolo contendere* by the railroads and dock companies and imposed the fines, which were apportioned on a basis of \$20,000 for each railroad and \$20,000 for the dock companies.

EDITORIAL IN THE IRON TRADE REVIEW.

The Ohio & Western Pennsylvania Dock Co. (The Hanna Company) and the Pennsylvania Co. have been fined for what they believed to be square dealing, what they still believe to have been square dealing, and what we believe was square dealing. However, the agitation which has resulted in fines being imposed upon them and other defendants promises to bring about highly desirable reforms. At the same time we are firmly of the opinion that these reforms might have been effected without being unnecessarily severe upon any company or individual. We believe that criminal proceedings were entirely unnecessary. Judge Putnam, the venerable jurist who presides over the district court of the United States in Massachusetts, in a recent decision in the shoe machinery case, pointed out that the framers of the Constitution of the United States lived at a time when the recollection of the cruelties of tyrannical proceedings and the suffering and injustice coming therefrom were fresh and to a large extent topics of consideration. The judge said that the favorite resources of tyrants were punishing alleged crimes which had no existence prior to the punishment, and the arresting and holding in imprisonment for indefinite periods and afterward forfeiting property and life. The judge might have added that modern cruelties of people in high office are today more refined, but none the less real. Judge Putnam declared that until laws are so clearly interpreted by the courts that any intelligent man can understand when he is not acting legally, the criminal provisions of the statutes ought not to be resorted to. Speaking of prosecution in the shoe machinery case, under the Sherman law, Judge Putnam said:

"We are unable to understand why the Department of Justice directs, and the President permits, criminal proceedings like this until, in the particular case, the practical application of the statute has been settled by civil proceedings, in view especially of the fact that the flexible methods of bills in equity are capable of exploiting all doubtful questions much more thoroughly, and with more just results, than criminal proceedings."

The same observation might have been applied to the cases which were disposed of Saturday. By consultation, and perhaps with mutual concessions, the result desired by the government officials could have been attained without threats of imprisonment, had they acted as wisely in the beginning of the inquiry as they have during the past few months, after being enlightened by experience and informed by investigation.

A BIT OF REMINISCENCE.

We wish now to recall several statements which were made last April, after the indictments were found. In an editorial published in the *Iron Trade Review*, May 4, 1911, we said:

"The statements made by Messrs. McCrea, L. C. Hanna and Samuel Mather indicate that the spirit of the law was not violated. Whether there was violation of the letter of the law, must be decided by the courts."

In the same issue the statement from President McCrea, of the Pennsylvania Co., was published, in which he said:

"The indictment of Mr. Hanna, president of the dock company, and Mr. McCabe, vice-president of the railroad company, for alleged conspiracy, appears to be due solely to the fact that it was they who executed, on behalf of their respective companies, this contract by which the exact and absolute equality of rates to all consumers of ore forwarded from the Pennsylvania Co.'s docks was guaranteed."

Samuel Mather, with honorable frankness, said, concerning the methods of the Hanna dock companies:

"Their allowances or distributions are, if anything, even more equitable than those of other dock companies, and certainly if they or we have been guilty of violating the law in any respect, this is the first suspicion or intimation any of us has ever had of it."

The facts developed since the above statements were made have demonstrated their absolute truthfulness. Why, then, were the

Hanna and the Pennsylvania companies fined? Simply and solely because the fact that they were distributing earnings of their docks more equitably than other companies were doing was not published in the tariffs. They were punished for not blazoning their own honorable methods to the world. Such, it seems, was the letter of the law.

THE DIFFERENT METHODS.

What was the difference between the methods of the Pennsylvania Co. and the Hannas, on the one hand, and those of the other companies? Simply this: In one case, if the Smith Steel Co. shipped one ton or millions of tons, it received the refund pro rated, according to the amount of ore handled. That was the Pennsylvania-Hanna method. On the other hand, if the John Doe Steel Co. owned stock in a dock company not owned or operated by the Pennsylvania or Hanna interests, it received at the end of the year tremendous profits, paid to the dock company by its competitors in the steel business. Was it strange that the Richard Roe Steel Co. complained that money was being extorted from it to be paid to its competitors? Not at all. Was it strange that Mr. Mather asserted that the Pennsylvania method was more equitable than other dock companies? Certainly not. The complaint of companies which really had a grievance resulted in agitation and indictments, and we wish to repeat that we believe this was not demanded by the cause of justice, so far, at least, as the Pennsylvania Co. and the Hannas were concerned. *All agree now that there was no sound reason for punishing Messrs. McCabe, Ireland and Hanna, who, after resting for nearly a year under the stigma of indictment of a penitentiary offense, are now dismissed and are heartily to be congratulated upon their vindication.*

THE ULTIMATE RESULT.

Nevertheless, in spite of the fact that these three men were unnecessarily placed in jeopardy, and of the further fact that reforms might have been accomplished without any criminal prosecution, we believe that, as the result of these prosecutions, ore handling will soon be done by simpler methods, at decreased cost to the shippers. *The plan will be as equitable as that devised by the Pennsylvania-Hanna companies and will have the additional merit of being absolutely open to the world.* In other words, we believe

that the Interstate Commerce Commission will not allow the Richard Roe Steel Co. to be charged excessive rates to be paid into the treasury of the John Doe Steel Co., nor will anybody be compelled to pay exorbitant charges.

A word in conclusion in commendation of the Interstate Commerce Commission and Department of Justice, District Attorney Denman and Judge Killets. The members of the Commission, after committing what seems to us the error of aiding in too drastic proceedings, changed their attitude and displayed broad statesmanship, thoroughly investigating the charges and in recommending to the Department of Justice that Messrs. McCabe, Hanna and Ireland be sent out of court without the slightest tarnish on their reputations as men of honorable business methods, and that the demand of technical justice be met by fines imposed on the companies. Likewise, the Department of Justice, the district attorney and the recommendations of the Commission. If all officials, whose duties learned judge are deserving of approbation for carrying out the include the enforcement of laws relating to industrial concerns, were actuated by as high motives and conducted themselves as wisely as Messrs. Lane, Denman and other officials in concluding these cases, and could be as well and equitably aided as they were problems growing out of the relation of the people to the mighty corporations, which have been developed with amazing rapidity by the attorneys for the defense, the solution of many perplexing during the past few years, would be hastened.

The conclusion of this prosecution gives reason for believing that, sooner than men have dared hope, will come the dawn of the day when great industries will be conducted under wise governmental supervision, without farcical dissolution suits, without unnecessary interference with business, without unjustifiably harsh methods, but with equality of opportunity and with justice for all.

RAILWAY NOTABILIA

PROGRESS IN STEEL PASSENGER CAR EQUIPMENT.

From Report of Special Committee on Relation of Railway Operation to Legislation.

The accompanying figures show the progress made in the gradual substitution of steel and steel under frame cars for wooden cars in passenger car equipment, since 1908:

Class.	Number of Passenger Equipment Cars Operated	Number Roads	In Service December 31, 1910			Received Since December 31, 1910, and Under Construction or Contracted for			Acquired in Calendar Year 1910			Acquired in Calendar Year 1909		
			Steel	Steel Underframe.	Wood.	Steel.	Steel Underframe.	Wood.	Steel	Steel Underframe.	Wood.	Steel.	Steel Underframe.	Wood.
A	501 and upward....	33	2,499	997	38,198	2,218	352	818	1,668	385	941	403	303	841
B	201 to 500.....	24	295	250	6,873	241	122	84	221	101	168	74	101	139
C	101 to 200.....	17	22	27	2,129	32	68	30	19	3	29	.....	.....	28
D	51 to 100.....	22	80	63	1,459	16	19	10	80	32	52	.....	7	9
E	11 to 50.....	57	31	130	1,386	11	15	31	22	14	31	9	18	63
F	1 to 10.....	40	.....	14	156	1	.....	6	.....	5	12	.....	.....	5
TOTAL.....		193	2,927	1,481	50,201	2,519	576	979	2,010	540	1,233	486	429	1,085
TOTAL ALL CLASSES.		.....	.....	.....	54,609	.....	.....	4,074	.....	.....	3,783	.....	.....	2,000
SECTIONS:														
	New England.....	7	12	40	4,909	29	14	460	.....	26	197	10	6	120
	East.....	69	1,106	354	15,955	1,110	205	68	576	75	203	165	58	164
	South.....	29	7	230	4,535	37	180	49	7	34	113	.....	159	90
	Middle West.....	25	475	631	8,000	362	84	6	372	247	32	74	114	108
	Northwest.....	15	184	72	3,312	208	20	112	120	.....	350	64	62	147
	Southwest.....	29	133	129	3,045	47	72	19	90	41	57	24	30	41
	West.....	11	480	25	1,800	317	1	1	326	17	49	143	..	6
	Sleeping Car Cos.....	1	525	.....	4,982	409	.....	.....	519	.....	54	6	.....	268
	Canada.....	6	.....	.....	3,643	.....	.....	263	.....	.....	178	.....	.....	121
	Mexico.....	1	.....	.....	20	.....	.....	1	.....	.....	.....	.....	.....	20
TOTAL.....		193	2,927	1,481	50,201	2,519	576	979	2,010	540	1,233	486	429	1,085
TOTAL ALL CLASSES.....		.....	.....	.....	54,609	.....	.....	4,074	.....	.....	3,783	.....	.....	2,000
CLASSES OF EQUIPMENT:														
	Postal.....	.....	210	111	1,132	298	70	11	138	10	12	46	30	4
	Mail and Baggage.....	.....	67	101	3,601	102	64	42	43	41	81	17	16	85
	Baggage and Express.....	.....	459	475	7,665	228	125	157	341	106	147	86	154	186
	Passenger, Pass. and Bagg.	.....	1,443	700	28,969	1,311	287	637	830	346	629	276	206	413
	Parlor, Sleeping, Dining...	.....	669	75	7,842	549	27	126	639	35	343	33	22	392
	Business and Instruction...	.....	2	19	816	5	3	6	1	2	14	1	1	4
	Motor.....	.....	72	.....	176	26	.....	.....	18	.....	7	27	.....	1
TOTAL.....		.....	2,927	1,481	50,201	2,519	576	979	2,010	540	1,233	486	429	1,085
TOTAL ALL CLASSES.....		.....	.....	.....	54,609	.....	.....	4,074	.....	.....	3,783	.....	.....	2,000

ELIMINATING GRADE CROSSINGS ON LONG ISLAND.

Statement by RALPH PETERS.

President Long Island Railroad Co.

The Long Island has done as much within the last ten years as any road in the country, in the elimination of grade crossings, and the expenditure of money to safeguard crossings at grade, and, in general, to educate the public in the dangers involved. There are 962 points on Long Island where public streets and highways intersect the tracks of the company. Of this number 161 crossings have been eliminated and put under grade and 104 over grade, making a total of 265 crossings abolished—the majority of them during the last decade. The money involved in this work amounts to approximately \$15,000,000. The annual interest charge on the investment is \$750,000, and it represents work for safeguarding the heedless public and not work that improves the operation of the railway, or produces additional revenues, except as insurance against damage.

In addition to this, the company maintains flagmen and gates at 169 crossings, and flagmen, without gates, at 61 crossings, making a total of 230 crossings protected by men on the ground. This means the employment of 350 men, at a cost of about \$200,000 a year. Seventy-four crossings are protected by electric alarm bells which ring automatically with the approach of trains. The installation of crossing gates and bells cost \$115,000. To sum up, we have 265 crossings eliminated, and 304 crossings protected either by flagmen and gates, or flagmen and bells, which leaves 393 crossings protected only by the usual signs specified by the railroad commission. These are placed in conspicuous view on both sides of the tracks, and each sign bears the warning "Look out for the cars. Stop! Look!" Sixty-five of the 393 crossings protected only by signs are on branches of the road where no passenger trains are run and only an infrequent freight service is maintained. These have not been reported heretofore, which accounts for the apparent increase over former figures.

The company has added 54 crossing gates and 75 crossing watchmen in the last four years. Work is now under way which will eliminate about twenty more crossings, at a cost of over \$3,000,000. It would mean an initial investment of \$235,000, and add approximately \$250,000 a year to the payroll to cover every crossing with

gates and flagmen. The company is doing all that it possibly can in this direction with the revenue derived from its present tariff rates. To produce the revenue necessary to protect all crossings and to continue the work of elimination, the rates on about 65 per cent. of the traffic would have to be raised at least 25 per cent. This would mean an increase of at least \$2 a month on all forms of commutation tickets.

Why should the traveler on the railway be made to pay more in order to protect the traveler on the highway? The trains must run on fixed tracks at a reasonable speed. The traveler on the highway has freedom of routes, and an opportunity of stopping. Being in small numbers, they should be made to stop and give preference to the railway travelers who are in larger numbers, on larger and heavier vehicles, which cannot be safely stopped on short notice or in a short distance.

The Long Island Railroad Company has not earned enough to pay a dividend to its stockholders in nearly fifteen years, notwithstanding the wonderful growth of its territory and its traffic. To keep pace with this growth, it has been compelled to expend in improvements vast sums amounting in ten years to almost the equal of the full capital investment. Traffic and earnings have shown a wonderful response to the expenditures and improvements that have been made. As a result, it will, no doubt, be able to get the money to continue the work of improving the road. If so, crossings will be taken out as rapidly as possible, especially where the company has the aid and co-operation of the state and municipality.

The railroad company will do its full duty in this direction, but it cannot and will not assume the position of public guardian and protector of every thoughtless user of the highway. . . . The legislature should enact a law requiring drivers of automobiles and other vehicles to stop, and make sure that a train is not approaching before attempting to cross tracks.

BRITISH AND FRENCH RAILWAY SPEED IN 1911.

(From "The Engineer," London.)

Below are our annual tables of British and French railway speed. Of this country there are few changes to record. In Table A the Great Northern run is one minute quicker. The Kent Coast express leaving St. Paul's at 5:12 p. m., no longer runs during the summer only, and since the autumn two new non-stop trains

between Victoria and Margate (West) in 1 h. 30 min. have been added, viz., Victoria dep. 9:10 a. m., Margate dep. 5:20 p. m.

Table B schedules runs of less than 50 miles in length, which give higher rates of speed than those credited to the respective companies in Table A, and also includes the fastest running made by those companies which are unable to show a run 50 miles in length.

During the summer the Caledonian had two runs, instead of one, from Forfar to Perth in 32 min. For the first time the Tilbury Railway yields a run at 50 miles an hour; and it may be noted that the outburst of competition between that system and the Great Eastern Company for the Essex Coast traffic has intensified since the summer.

TABLE A.—FASTEST BOOKED START-TO-STOP RUNS NOT LESS THAN 50 MILES IN LENGTH ON BRITISH RAILWAYS IN 1911.

COMPANY.	RUN.	Miles	Time occupied.	Speed. Miles per hour.
			h. m.	
Great Western.....	Paddington-Bristol.....	118½	2 0	59.2
Great Northern.....	Peterborough-Kings' Cross.....	76½	1 18	58.6
London and North-Western.....	Willesden-Coventry.....	88½	1 32	57.7
North-Eastern.....	York-Newcastle.....	80½	1 24	57.4
Midland.....	St. Pancras-Kettering.....	72	1 16	56.8
Great Central.....	Marylebone-Leicester (via High Wycombe).....	107½	1 54	56.5
Caledonian.....	Perth-Aberdeen.....	89½	1 37	55.9
London and South-Western.....	Waterloo-Salisbury.....	83½	1 31	55.1
Great Southern and Western.....	Ballybrophy-Mallow.....	77½	1 28	53.0
Glasgow and South-Western.....	Kilmarnock-Carlisle.....	91½	1 46	51.5
Brighton and South Coast.....	Victoria-Brighton.....	51	1 0	51.0
Great Eastern.....	Liverpool-st.-Norwich (Trowse).....	114	2 14	49.9
North Stafford.....	Crewe-Rhyl.....	51½	1 3	48.7
South-Eastern and Chatham.....	St. Paul's-Margate West.....	73½	1 33	47.4
North British.....	Edinburgh-Carlisle.....	98½	2 11	45.1

TABLE B.

COMPANY.	RUN.	Miles	Time occupied.	Speed. Miles per hour.
			h. m.	
North-Eastern.....	Darlington-York.....	44½	0 43	61.7
Great Central.....	Leicester-Nottingham (Arkwright St.).....	22½	0 22	61.3
Caledonian.....	Forfar-Perth.....	32½	0 32	60.9
Midland.....	Kettering-Bedford.....	22½	0 23	58.0
London and South-Western.....	Basingstoke-Vauxhall.....	46½	0 49	56.9
Lancashire and Yorkshire.....	Manchester-Liverpool.....	37	0 40	55.5
South-Eastern and Chatham.....	Tonbridge-Ashford.....	26½	0 30	53.0
Great Eastern.....	Lincoln-Spalding.....	38½	0 44	52.1
Tilbury and Southend.....	Stepney-Westcliff.....	33	0 39	50.7
Hull and Barnsley.....	Hemsworth-Howden.....	25	0 30	50.0
Great Northern (Ireland).....	Drogheda-Dublin.....	31½	0 39	48.8
Somerset and Dorset.....	Blandford-Evercreech.....	27½	0 34	48.0

TABLE C.—FASTEST BOOKED START-TO-STOP RUNS NOT LESS THAN 50 MILES IN LENGTH ON FRENCH RAILWAYS IN 1911.

COMPANY.	RUN.	Miles	Time occupied	Speed, Miles per hour.
			h. m.	
Northern.....	Paris-St. Quentin.....	95 $\frac{1}{4}$	1 33	61.8
Paris-Orleans.....	Bordeaux-Angouleme.....	86 $\frac{1}{4}$	1 29	58.1
Eastern.....	Paris-Chalons.....	107 $\frac{1}{2}$	1 54	56.5
P. L. and M.....	Dijon-Macon.....	77 $\frac{1}{2}$	1 23	56.2
State (Old System).....	Chartres-Thouars.....	147 $\frac{1}{2}$	2 50	52.1
State (Western).....	Paris-Rouen.....	86 $\frac{1}{4}$	1 40	51.7
Southern.....	Dax-Bordeaux.....	92	1 48	51.1

In Table C the Eastern Company's run displaces one from Paris to Troyes, 103 $\frac{3}{4}$ miles, in 1 h. 47 min., speed 58.1. The latter run is now performed by two trains in 1 h. 53 min., speed 55.0. The run from Chartres to Thouars is 3 min., and that from Paris to Rouen 5 min. slower.

It is notorious that the State administration of the old Western system has resulted in the services becoming a by-word of unpunctuality, danger, and general inefficiency. The latest attempt to remedy the chaotic condition of affairs is wholesale deceleration.

For example, in 1910 there were fourteen non-stop runs between Paris and Rouen, averaging 1 h. 50 min., or a speed of 47 miles per hour. There are now ten runs, averaging 2 h. 15 min., or a speed of 38.3 miles per hour. The day boat train from England (Victoria dep. 10 a. m.) now arrives in Paris at 7:12 p. m. instead of 6:43 p. m.; while in the opposite direction the departure from Paris is 10:15 instead of 10:20 a. m., and London is reached at 7:35 p. m. instead of 7 p. m.

The most important expresses are the Paris and Havre, a journey of 141 $\frac{3}{4}$ miles, and they may be dealt with in detail:—

	1st class.	1st class.	1st and 2nd class.
	A. M.	P. M.	P. M.
1910.....Paris, dep.....	8.16	4.25	7.47
Havre, arr.....	11.1	7.45	11.0
1911.....Paris, dep.....	8.5	4.15	7.19
Havre, arr.....	11.32	8.10	11.42
	1st and 2nd class.	1st class.	1st. class.
1910.....Havre, dep.....	8.8	12.45	8.45
Paris, arr.....	11.20	4.25	11.32
1911.....Havre, dep.....	8.0	12.33	8.30
Paris, arr.....	11.33	5.0	12.0

As there is nothing novel to record of either, the tables of the longest non-stop runs on British and French railways do not need repetition.

Last year we furnished some particulars of railway speed in Germany. The fastest run in the Empire is still that from Berlin to Halle, 101 miles, in 1 h. 50 min., speed 55.0, but there are now three trains performing it instead of one.

Two new dining-car non-stop expresses have been put on between Berlin and Hamburg, a journey of $178\frac{1}{4}$ miles. The quicker, Berlin dep. 8:40 p. m., accomplishes the run in 3 h. 20 min., speed 53.4, while the corresponding train to Berlin, Hamburg, dep. 6:10 p. m., takes 2 min. longer. Hitherto the longest non-stop run in Germany was 158 miles, viz., between Berlin and Hanover.

Outside France and Germany there appears to be no continental run of any length which attains a speed of 50 miles an hour. The Low Countries seemingly yield the next best running, the fastest in Belgium being Ostend to Brussels (Nord), $75\frac{3}{4}$ miles, in 1 h. 34 min., speed 48.3; and the fastest in Holland, Flushing to Boxtel, $85\frac{1}{4}$ miles, in 1 h. 50 min., speed 46.5.

NOTE.—In the United States we have few trains that for a short distance are to be compared with the fastest of these British and French speeds. But we have many trains that from distances of 50 miles up are as fast and faster. At present our well-known flyers are as follows:

	Miles.	Time occupied.	Speed, miles per hour.
		h. m.	
Atlantic City R. R. Camden-Atlantic City.	56.5	.. 55	61.6
Pennsylvania R. R. Camden-Atlantic City.	59.0	.. 59	60.0
Lake Shore & Mich. So. Elkhart-Toledo	133.0	2 13	60.0
Lake Shore & Mich. So. Chicago-Toledo	234.0	4 8	56.2
Penn. Co. (Ft. Wayne) Chicago-Pittsburg	468.4	9 1	52.0
Pennsylvania Lines. Chicago-New York	908.9	18 0	50.5
New York Central Lines. Chicago-New York	978.7	18 0	54.3

LONDON'S DAILY RAILWAY PASSENGERS.

(From the Railway and Travel Monthly.)

The census taken by the City of London Corporation of people entering the city on April 28th show that from the twenty-four railway stations within the square mile, no less than 342,451 persons emerged from these stations during the twelve working hours of that day. Liverpool Street is easily first, and shows an increase of 30,932 passengers arriving there after the figures of twenty years

earlier, when the counting was continued for 16 hours (5 a. m. to 9 p. m.).

The morning hours were naturally the busiest time for arrivals by railway. At Liverpool Street the number of persons estimated to have alighted at the sixteen platforms in use during the hours stated were:—

A. M.		A. M.	
7 to 8.....	17,150	10 to 11.....	3,800
8 to 9.....	23,000	11 to 12.....	2,070
9 to 10.....	18,750		

The above figures show a total of close upon 65,000 persons entering the station in the five hours stated, or an average of 13,000 an hour.

At Broad Street Station the busiest hours were from 8 to 10 a. m. From 8 to 9 it was estimated that an average of 1,500 persons passed each of the eleven gates per hour, and from 9 to 10 the average was 1,000 for each gate per hour, the numbers falling off considerably later. On one platform 780 persons arrived in two trains.

The table below gives the comparative figures for the census of 1881, 1891 and 1911:—

Name of Station.	1911. (12h.)	1891. (16h.)	1881. (16h.)
Liverpool Street (G. E.).....	80,758	49,826	32,324
Broad Street (N. L.).....	27,397	42,215	29,506
Cannon Street (S. E. & C.).....	27,054	26,524	20,471
Fenchurch Street (G. E. & L. T. & S. R.).....	25,822	26,729	15,242
Lombard Street, "T".....	16,538	.....	.....
Liverpool Street (Met.).....	17,092	11,766	8,272
Aldersgate Street (Met.).....	15,654	14,300	8,812
Moorgate Street (Met.).....	15,440	15,295	12,634
Mansion House (Dist.).....	13,853	9,453	15,528
Moorgate Street (G. N. and City) "T".....	12,473	.....	.....
Mark Lane (Met. Dist.).....	10,771	4,257	.....
St. Paul's (S. E. & C.).....	10,314	7,244	.....
Blackfriars (Met. Dist.).....	10,231	5,520	3,541
Bank (Central Station), "T".....	9,771	.....	.....
Do. (Waterloo) "T".....	7,425	.....	.....
Aldgate (Met.).....	7,273	6,359	.....
Monument (Met. Dist.).....	6,206	3,896	.....
Cannon Street (Met. Dist.).....	6,107	2,710	.....
Ludgate Hill (S. E. & C.).....	5,405	15,772	18,390
Moorgate Street (C. & S. L.), "T".....	5,421	.....	.....

Post Office (Central London), "T".....	5,115	.....	.....
Holborn Viaduct (S. E. & C.).....	4,262	3,680	2,777
Snow Hill (S. E. & C.).....	2,068	2,808	2,532
King William Street (C. & S. L.) "T".....	.....	3,936	.....
Totals	324,451	252,270	168,029

A glance at the above table shows a striking decrease of 10,367 passengers arriving at Ludgate Hill Station, as compared with 1891, which in its turn showed a decrease of 2,618 when compared with ten years earlier. There is, however, an increase of 3,070 at St. Paul's station this year when compared with 1891. In 1891 the only Tube station in the city was that belonging to the City and South London Railway, in King William Street, near the Monument, which is now closed. This year six Tube stations come into the list, and they brought in 56,744 passengers. In the above statement Tube stations are designated by a capital "T."

ITALIAN STATE RAILWAY FINANCE.

(From THE RAILWAY GAZETTE of London.)

Although the administration of the Italian State Railways has recently undergone some improvement as compared with the condition of affairs existing during the first few years of State operation under the new *régime*, the financial results of Government ownership continue to contradict the arguments of the nationalization advocates. The main lines were taken over by the Government in 1905, when the companies were paying the National Treasury about 65 million lire annually.* Allowing for traffic increases, this figure should amount at present to at least 80 million lire, or, in other words, the working of the State Railways ought to be yielding an annual net profit of that amount. Actually, the net revenue paid over to the Treasury by the State Railways has in no single year amounted to anything like the *share* of the profits formerly handed over to the Treasury by the companies, and the general tendency is for the surplus to decrease, as shown in the following table, which gives the payments to the Treasury for four consecutive years:—

1906-7.....43 million lire	1908-9.....20 million lire
1907-8.....37 " "	1909-10.....37 " "

As a matter of fact, the increase shown for 1909-10 compared with the previous financial year is only apparent, since the figures were

*A lire is equal to 19.3 cents.

manipulated partly in order to conceal from the taxpayers the costliness of the luxury of a State railway system, and partly for reasons connected with the drafting of the railway budget. This was effected by a very ingenious method, which consisted in passing a law in 1909 whereby the Railway Administration was relieved of certain heavy expenditures. M. Ancona, an Italian deputy and a competent engineer, has calculated that the Railway Administration was in this way freed of a charge of 24 million lire in 1909-10, which means that for that year the surplus handed over to the Treasury would amount to only 13 million lire instead of the official figure of 37 million. Furthermore, M. Ancona has shown that still another "lightening of expenditure," amounting to 8 or 10 million lire has to be taken into account, which would reduce the net surplus to three or five million lire. Commenting on these figures, the *Economist* recently stated that it was shown beyond doubt that in the brief period of five years of State operation, the Treasury had lost the entire revenue on the capital of five milliards of lire spent on the construction, the equipment and the acquisition of the railways.

AMERICAN WATERWAYS SUPERIOR TO EUROPEAN.

BY GEN. WM. H. BIXBY.

(From an address delivered before the National Rivers and Harbors Congress.)

Several years ago there was a considerable cry throughout the country that the United States was away behind the rest of the world in matters of waterway improvement and waterway utilization, and statements were made broadcast that if the United States could only be given a system of waterways equal to those in Europe in length, breadth and depth, there would be an immediate enormous development of water-borne commerce. The fact is, however, that the most of our water-borne commerce difficulty is due to other things than merely the depth, width and length of our waterways.

Last year, after careful investigations extended over several years, the British Royal Commission on Canals and Waterways finished and submitted a report upon the advisability of doubling the depth and capacity of British Canals. In its report and as an appendix thereto, this Royal Commission gave careful statements

as to all the waterways of France, Belgium and Germany, including extensive and valuable tables of details as to the cross-section, capacity and tonnage of these waterways.

The results show that no matter whether you consider merely navigation of 2 ft. depth, or of 6 ft. depth, or 10 ft. depth, or 20 ft. depth, the United States has in existence more miles of good navigation than France, Belgium and Germany all put together; and that if it were possible to trade off the waterways of the United States for the waterways of Europe, it would be Europe and not the United States that would be the beneficiary by the transaction.

It is difficult for the general public to make proper comparisons between the waterways of this country and Europe, and to draw therefrom correct deductions. The differences between the two parts of the world are too great. In comparison with the United States, Europe has an enormous and densely settled population, and consequently it has more mouths to feed, more bodies to clothe, more people to house and more natural and manufactured products to transport per square mile of country or per linear mile of river.

For example, entire Europe averages 107 inhabitants per square mile against 46 for the entire United States. In Germany the density of population is 290 per square mile, and in Belgium 620, while in many parts of the United States in the neighborhood of our improved rivers the population is scarcely more than 40 per square mile.

Moreover, as a general rule, throughout Europe the use of waterways and of railways is controlled by the General Government in such a way that there is always maintained a difference between freight rates by water and those by rail sufficient to encourage the use of these waterways to a much greater extent than is possible in the United States under our habits and customs. When the United States becomes as densely populated as Belgium, it will be difficult to find enough railroads and waterways to supply even the emergent needs of our population.

EUROPEAN RAILROADS.

An Essay in Jerky Sentences from the "Gimlet."

It's popular in the U. S. A. to "knock" our railroads. After railroading in England, France, Germany, Belgium, Holland,

Switzerland, Bohemia, Austria and Hungary, I take back most humbly all I have ever said against an American railroad.

Please read, reflect and retain the following facts. Legislators are especially requested to R. R. R.:

European trains are slower than ours.

European roads are more expensive than ours.

Their sleepers are a joke.

They are dirty and poorly kept.

They are usually late.

Their "diners" make one weep.

There are usually no reservations.

You make a mad scramble for seats.

You are locked in small compartments with strangers.

The "fast" trains between capitals are not so bad.

When you get into the "interior" you see railroading that's primitive all right.

They stop a long time at every station.

They punch your ticket at the gate and take it up when you arrive at another gate.

No one shows you your car.

No one gets you a seat.

You hire a porter to take your luggage and trust to him.

Conductors take tips. If not too crowded, you can get a whole compartment for a tip.

They only allow 58 pounds for baggage.

They have no checks. Sometimes you get a thin paper receipt. Excess baggage charges are excessive.

Checking your trunks from your home to your hotel in another city is a dream of the future.

Travelers carry a wagon load of "grips" and fill up the compartments.

Ticket sellers are mostly women.

If you don't look out you get "short changed."

Conductors draw from \$40 to \$50 per month.

Their lanterns are candles in a square glass box.

There are no bells on the engines.

They warn with a shrill whistle.

The conductor does not sing out "All aboard," but blows a whistle twice.

Many trains have no toilet accommodations.

Meal hours are very uncertain—always carry chocolate and crackers.

In Germany when a train stops, sellers of beer pass it in the windows.

The nicest station we saw in all Europe was at Salzburg. Die neue Kunst.

After the train starts you never see the conductor. They do not call out stations. You look out for yourself.

We shook hands all 'round when we found ourselves on the "Pennsylvania 24-hour train" bound for St. Louis—all our troubles were over.

THE SONG OF THE AMERICAN FREIGHT CAR.

BY S. W. GILLILAN, *in Baltimore American.*

I'm a bumped and battered freight car on a sidetrack in the yard;
I'm resting—resting gladly, for my life is cruel hard,
And I seldom find an hour when I'm idle or at home,
For I'm usually loaded and am out upon the roam.
I've been shunted in Seattle. I've been switched in Boston town;
I've been stranded in St. Louis, where I saw the train crew drown.
I've been snowed in up by Denver; I was wrecked at Council Bluffs,
When the strike was in Chicago I was stoned by savage roughs.

I've hauled lumber in Wisconsin; I have helped move Kansas wheat;
I have camped within the stockyards till they filled me up with meat;
I have brought green watermelons from the sunny, sunny South,
While the darkies gazing at me 'gan to water at the mouth.
I have rumbled o'er the Coast Line on the California shore,
I have hauled the Lompoc mustard crop and Santa Ana ore.
I have been from Manitoba down to Matagorda Bay,
While on every trip I've traveled by the longest, slowest way.

I have hauled the toil-scarred hobo by the dozens and by ones;
I have carried honest poor men in my longer westward runs;
I have carried fleeing criminals deep-buried 'neath the corn
That from off the rustling ranches to the greedy mills was borne.
I have carried knaves from justice; I have carried fools to wealth,
Hauled the hopeless home to perish, hauled the invalid to health.
I have stood between the tourist and the scenery he thought
Should be seen from sleeper window when a "guide book" he had bought.

I have often lost an axle when the train was wrecked and stood
For a week until the workmen found the time to make it good.
I've been everywhere, seen all things, been in sunshine, rain and snow;
I've been idle for a fortnight, then for months upon the go.
I'm a bumped and battered freight car on a sidetrack in the yard;
There are chalk marks on my body—these my only calling card.
But I see the pony engine coming for me on the fly—
No idea where I'm going or what for, but—bump—good-by!

ADDED STANZA BY "GONDOLA HOPPERBOTTOM FLATBOX."

There's a cuss they call Per Diem now that keeps me on the jump,
He never lets me stop and rest. 'Tis always up and hump.
In the good old times I had a chance to sleep a month or so
Every summer on a siding, waiting for the wheat to grow,
Or they'd fill me up with cotton, and I'd have a little quiet
Till the broker man that owned it found a customer to buy it.
But now those peaceful days are gone. 'Tis always, "Get thee hence!
What are you doing standing there, a-wasting twenty cents?"
It's hustie all day long, and then at night, unless I'm ditched,
At eleven fifty-nine p. m. I'm certain to be switched.

STATISTICS OF AMERICAN RAILWAYS

FOR THE YEAR ENDING JUNE 30

1911

PREPARED BY

SLASON THOMPSON

MANAGER OF THE BUREAU OF RAILWAY NEWS AND STATISTICS

INTRODUCTORY

It is excellent
To have a giant's strength; but it is tyrannous
To use it like a giant.

Measure for Measure.

Railway affairs in the United States during the year 1911 have been "on the knees of the gods," *i. e.*, the Interstate Commerce Commission, and they have suffered accordingly. Invested by Congress with powers of life or lingering death, the Commission has failed to exercise these powers either beneficially or constructively, but with scarce an exception has used them constrictively and destructively. Regulation without provision for improvements, betterments and extensions spells eventual deterioration and decay. Reductions in rates attended by advancing wages and all other costs of operation mean not only the curtailment of improvements but also impairment of service.

Administrative commissions are notoriously political, not economic in their origin, appointment and tenure. Their motives therefore are political rather than economic, and so their ruling idea is to make political capital rather than insure success through efficient management. The attitude of the Interstate Commerce Commission toward the railways is an illustration of regulation by an administrative commission.

Prof. H. C. Adams, the ex-statistician of the Commission, sought to achieve the impractical by making the control of the railways through their accounts the goal of his multifarious statistical requirements. The purpose of this compilation is to construct a mirror of facts and figures wherein the American people may see what is being done to their railways—the essential arteries of their industrial life—by a mistaken application of regulation.

Dazzled and possibly alarmed over the magnitude of the vast business it was created "to conserve and protect," as well as regulate, the Commission seems to have set itself the task of leveling all railway rates down to the point where their entire income is divided among the employe, the tax collector and the creditor, ignoring the claims of the public for improved, up to date facilities, and of the owners for reasonable remuneration.

The first figures in the statistical mirror show that where during the past two years railway revenues have been the largest in their history their net income has declined, in spite of economies that leave the roads generally insufficiently equipped to handle the future demands of traffic which normally doubles every decade:

GROSS AND NET REVENUES OF THE RAILWAYS OF THE UNITED STATES FOR THE LAST THREE CALENDAR YEARS.

Average Miles of Line Operated	Gross Revenues from Operation	Net Income Including Profits from Outside Operations and Deducting Taxes	Net Income per Mile of Line Operated
1909—234,950.....	\$2,607,228,647	\$812,792,315	\$3,460
1910—239,975.....	2,841,099,312	802,676,736	3,345
1911—244,138.....	2,814,222,700	770,830,007	3,157

In studying this travesty on industrial progress, that proceeds like the crab in Hamlet's perturbed imagination backwards, the student should remember that but for the depression of 1907 and the recession of over \$300,000,000 of earnings in 1908, railway revenues under normal conditions would have been over three billions in 1909 and over \$3,500,000,000 in 1911, *provided always that facilities and equipment in the meantime had been maintained equal to the normal growth of the traffic.* That they have not been so maintained during the past four years is one of the notorious and unavoidable facts of the situation. The stagnation in the railway supply business is at once proof and result of these conditions.

The fact of an increase of over \$200,000,000 in gross revenue in two years attended by a decrease of \$42,000,000 in net shown in the above statement is accentuated by an *average* increase of no less than 9,188 miles of operated line. Moreover, between January, 1909, and December, 1911, there was an actual increase of over 14,500 miles. At a moderate estimate of \$40,000 per mile, this means that nearly \$600,000,000 had in the meantime been irrevocably devoted to public use in American railways.

QUARTER OF A BILLION ADDED TO PAY ROLL.

The chief factor in bringing about the loss in net income shown above was the increase in the rate of wages in 1910 agreed to in expectation of the increase in freight rates denied by the Commission in February, 1911. This is reflected in the following statement for which we have to revert to the figures for the fiscal years mentioned:

NUMBER AND COMPENSATION OF RAILWAY EMPLOYEES FOR THE YEARS ENDING JUNE 30, 1909, 1910 AND 1911.

Year	Number	Compensation	Average per Man per Year
1909.....	1,528,808	\$1,005,349,958	\$657
1910.....	1,732,435	1,165,444,855	672
1911.....	1,695,000	1,230,800,000	726

Here is shown an increase in railway payrolls in two years of upwards of \$225,000,000, or more than enough to offset the increase in gross earnings in the meantime. The fact of chief significance, however, is the increase of \$69 a year per employe which demonstrates in a rough way that \$117,000,000 of the quarter of a billion increase was due to the advance in the rate of wages, which was only partly effective in the year 1910.

In 1909 the pay roll absorbed 41% of the gross earnings of the railways, in 1910, 42%, and in 1911, 43.67%; in the meantime the operating ratio rose from 66.16% in 1909 to 68.68% in 1911 (vide monthly returns).

PASSENGER TRAFFIC WELL MAINTAINED.

That these figures do not reflect an even less healthy condition than they do is due to the steady increase in passenger traffic where the average receipts show a recovery to almost 2 cents a mile from the low level of 1909. During the three years the receipts from passenger and freight traffic were as follows:

RECEIPTS FROM PASSENGER AND FREIGHT TRAFFIC FOR THE CALENDAR YEARS 1909, 1910 AND 1911.

	Revenue From Passengers	Receipts per Passenger per Mile (Cents)	Revenue From Freight	Receipts per Ton per Mile (Mills)
1909.....	\$601,722,959	1.928	\$1,796,256,314	7.63
1910.....	647,739,773	1.938	1,966,478,759	7.53
1911.....	661,276,838	1.966	1,920,685,962	7.54

Note.—The average receipts per passenger and ton mile are for the fiscal year, as no data for the calendar year is available.

The effect of the attrition of persistent rate reductions is shown in the last column, where instead of a gradual advance due to the carriage of high class commodities as density of population increases, there is shown a material reduction. The difference of nine one-thousandths of a cent shown in the above statement, so seemingly insignificant, represents a loss of over \$22,000,000 to the railways in a year when they needed every dollar.

INCREASING CHARGE FOR CAPITAL.

So far the statistical mirror has reflected only the straits to which the railways have been brought by the advancing cost of operation. But there is a nether stone upon which they are being ground with equal though not as apparent force. Capital has a claim on railway revenues as inevitable and indisputable as any of the items included in operating expenses. Six hundred million dollars has been mentioned above as the reasonable cost of 14,500 miles of line added to the operated mileage in the United States since January 1, 1909. How much of this was borrowed and how much invested there is no convincing means of knowing. But the payment of interest on funded debt affords a rude barometer in which to read the inexorable claims of capital on railway income. For the three years covered by the preceding statement, the amounts paid on this account out of income were as follows:

INTEREST PAID ON FUNDED DEBT BY OPERATING AND OPERATED ROADS, 1909, 1910 AND 1911.

	Operating Roads		Leased Roads	
	Interest on Funded Debt	Interest on Current Liabilities	Interest on Funded Debt	Interest on Current Liabilities
1909.....	\$331,994,861	\$22,158,417	\$49,906,920	\$2,064,632
1910.....	349,092,709	13,207,243	49,640,657	3,313,099
1911.....	360,686,381	15,070,222	No data	No data

Complete returns will raise the interest paid on funded debt by operating roads to over \$365,000,000; other interest and interest paid by leased roads will make the total over \$432,000,000.

Formidable as is this aggregate, it represents only 4.2% on the total funded debt of all the railways in 1910 and not 4% on their present funded debt and current obligations.

If it be subtracted from the net operating income (\$770,830,007), it leaves only \$338,830,000 to be divided among deficits for weak companies, appropriations for additions and betterments, other reserves and deductions, dividends and surplus. What is left for dividends and surplus may be judged from the fact that in 1910 the other items mentioned absorbed \$104,870,685 of the sum available after payment of interest.

THE MARGIN OF SOLVENCY AND EFFICIENCY.

It is the steady shrinkage of the margin between the demands of labor and the charges of capital that is the alarming feature of the railway situation today. Perhaps what is happening to this margin can be best illustrated by dividing gross earnings into the several percentages received by each in two specimen years, ten years apart, as follows:

SUMMARY OF PERCENTAGES OF GROSS EARNINGS PAID TO OPERATING EXPENSES, TAXES, INTEREST IN 1901 AND 1911.

	Per Cent of Gross Earnings	
	1901	1911
Operating Expenses.....	64.86	68.58
Taxes.....	3.20	4.10
Interest on Funded Debt.....	15.61	15.35
Margin for Additions, Betterments, Deficits, Dividends and Surplus.....	16.33	11.97
	100.00	100.00

For twenty years railway management has been struggling with the problem of maintaining a safe margin between the upper and nether millstones of this industry represented by labor and capital. It has introduced innumerable economies of operation. Through years of stress and prosperity these economies alone have saved the situation. Every instrumentality of transportation that modern invention could devise and capital could command has been pressed into the service to maintain the margin of profit that is the only assurance of safe operation and continuous improvement.

During this period the cost of labor per unit has increased; the tax rate has advanced 33%; the rate of interest on borrowed capital has gone up (nearly 1%); regulative exactions, some protective,

many impractical, all arbitrary and expensive, have multiplied; hundreds of miles of tracks have been elevated; thousands of grade crossings have been eliminated; more than 12,000 miles of double track have been laid; the block signal system has been installed on over 70,000 miles; heavier rails have been laid; the weight and capacity of equipment have been doubled; modern stations have replaced innumerable temporary and outgrown structures;—in short the facilities and conveniences of transportation have been revolutionized at constantly augmenting cost, whereas the average receipts per passenger mile and per ton mile have decreased and mail pay has been arbitrarily reduced.

As an inevitable result of this 'high cost of living' and reduced pay, the margin of solvency and efficiency during the last ten years, as shown above, has shrunk from 16.33% of gross earnings to 11.97%, or no less than 36%, and this too in spite of the fact that capital's portion has declined from 15.61% to 15.35%.

It may be that the Interstate Commerce Commission has not had its attention called to this shrinkage. The Commission may be of opinion that the process can go on indefinitely, or it may be indifferent to what these figures portend. But the money markets of the world, upon which the railways depend for fresh capital, do take note of the portentous loss. *To them the difference between 16.33% and 11.97% on the gross earnings of the railways of 1911 represents a loss of over \$122,000,000, which reduces the borrowing credit of the railways by at least \$2,400,000,000!*

WHAT PROF. ADAMS SAID IN 1901.

Here it may be permitted to quote the language of the Official Statistician in his report for 1901, when things were going the other way:

"The percentage of operating expenses to operating income in 1891 was 66.73%; for the year covered by this report (1901) it is 64.86%. The difference may be said to represent the margin of financial improvement as between the two years placed in comparison. The significance of this apparently slight margin of improvements will be appreciated when it is observed that on the basis of the gross earnings for the year ending June 30, 1901, it results in placing at the disposal of the railways over \$29,000,000 in excess of what would have been placed at their disposal had the ratio of operating expenses to operating income of the year 1891 been continued. This fund, capitalized at the average rate of dividend paid upon stock, would warrant an increase in the valuation of railway property of over \$500,000,000."

It is a poor rule that won't work both ways, as this one does.

Whatever theorists, speculators and politicians may think, because they hope, there can be no return to permanent national prosperity so long as the Interstate Commerce Commission consigns the railways to a state of intermittent impecuniosity or perpetual retrenchment.

Today the budgets of railway managers calling for large sums to make delayed additions, improvements and extensions are pigeon-holed awaiting the favorable consideration of the money market. This market is not in the control of any man or group of men. It is the sum of the investing intelligence of the world, advised by the keenest and best informed minds of London, Paris and Berlin, to say nothing of Old and New Amsterdam. America numbers its contributors to the money market directly by the million and indirectly by tens of millions, and behind them, interested in the solvent operation of its railways, is the entire American people.

As this is written, the pressing needs of the railways to fresh capital to make good delayed improvements and to meet the immediate requirements for extensions and facilities have to be expressed in billions. How many the writer does not venture to estimate. There is scarcely a company of any extent in the country that does not need millions to put it in shape to meet public demands promptly and economically; many count their necessities by tens of millions and a few are in the market for hundreds of millions. All know that investors scan the situation with skeptical scrutiny because the Interstate Commerce Commission has shown no disposition to relent in the exercise of its power to reduce rates and suspend advances, and the representatives of certain classes of employes are again pleading the "high cost of living" in a demand for higher pay.

RAILWAY REGULATION.

The year 1911 has seen a steady advance in the matter of railway regulation.

Reduction of rates, irrespective of what is a "just and reasonable" charge for the service rendered, has been the persistent tenor of the Commission's rulings.

In opinion No. 1645 the Commission has said in so many words that it is "without power to order an increase in any rate."

The authority to suspend schedules advancing rates, instead of being a discretion exercised by the Commission, is delegated to and exercised by a file clerk.

This third step in the congenial art of regulating American railways may be considered as an abuse inseparable from the law shifting the burden of proof of the necessity for an increased rate to the carriers in all schedules advancing rates. No matter though unopposed or how imperative the necessity for a change may be, automatically the autocratic file clerk stamps it "Suspended," first for 120 days and then for six months more, by which time the necessity for the advance may have passed or the railway may be in the hands of a receiver.

Thus what was presumed to be the exercise of a broadly informed discretion becomes the perfunctory act of a clerk or office boy. It would be impractical for the Commissioners to pass on all these schedules, but they should at least be submitted to an experienced official or examiner and the suspension should be discretionary and not automatic.*

During the year 1911 the Commission has handed down a total of 249 decisions, of which 156, or 62%, granted reparation or reduced rates to the complainants without a single advance. The opinions accompanying these decisions, except those submitted by the Commission as a whole, were written by the following members:

Opinion by	Dismissing Complaints	Granting Reparation or Reductions
Chairman Clements.....	3	12
Commissioner Prouty.....	9	20
" Lane.....	3	8
" Clark.....	2	10
" Harlan.....	10	9
" McChord.....	4	8
" Meyer.....	3	8
By the Commission.....	59	81
Total.....	93	156

Contemporaneous with this deliberative work of the Commission, the process of trimming railway revenues to suit the ideas of

*NOTE.—The Commission claims that this is a misstatement; that only a small fraction of tariffs advancing rates is suspended, and these only after the advance has been passed on by a board of qualified and trusted experts.

shippers proceeds with automatic dispatch. In 1911 no less than 2,861 reparation orders, or unreported opinions, granting refunds ranging from a few cents up to tens of thousands of dollars were entered. This is a slight decrease from the 3,103 entered in 1910.

IF THE GOVERNMENT OWNED THE RAILWAYS.

The *impasse* possible through the lowering of rates and the raising of wages suggests what would happen if, to preserve the necessary transportation interests of the country, the government were to take over the ownership and operation of the railways of the United States.

In the first place, their acquisition would necessitate the issue of something like \$20,000,000,000 four per cent. bonds. Whether such a stupendous issue could be floated at par, or would stagger the credit of the richest nation on earth, will not be known until it is tried.

Before the ink on these bonds was dry, the government would have to float an additional billion bonds for delayed improvements and facilities, another billion for construction and extensions that the business of the country actually needs, and still another billion to build lines where they are *wanted but not needed*.

So within three or four years we would have a government railway debt of over \$23,000,000,000, involving an annual interest charge of \$900,000,000.

Even then the American railways would still be capitalized below the average of European railways.

But would the expenses of operation remain stationary? Would the labor organizations accept the answer of no funds for more wages? Where private operation gets along with 700 men per 100 miles of line, would not political operation find places for three times as many, as in Germany, for instance? And would the pay per man come down to the German level, or would the government pay American wages at the expense of American shippers by boosting freight rates to the German level, or resort to general taxation? What would become of the organizations of labor employes? Would the government tolerate them?

These are the speculative rocks toward which drastic regulation of American railways is driving them.

Japan affords an object lesson in the rapid growth of railway capitalization under the fostering care of government ownership. In 1907 when a majority of the lines were still under private owner-

ship, the capital account stood \$315,686,821 for 4,808 miles of road, or \$44,860 per mile. In 1910, when the government had "nationalized" all but 506 miles, the capital account, according to imperial figures, stood 769,624,014 yen (\$384,812,007) for 4,624 miles, or over \$83,000 a mile. This cannot be charged to the excessive cost of labor, for the average pay of the 90,131 railway employes in Japan in 1910 was only 17.50 yen per month, or \$105 a year.

REVIEW OF THE LAST FIVE CALENDAR YEARS, 1907-1911.

For the purpose of presenting an up-to-date comprehensive view of the railway situation following the panic of 1907, the next three statements give the gross earnings, operating expenses and net operating revenues of the railways for the *calendar* years 1907 to 1911 by months. These tables, except for the first six months of 1907, are compiled from the monthly bulletins to the Interstate Commerce Commission. Unlike the statistics based on annual reports, they include returns from switching and terminal companies. In this respect they are more truly representative of the transportation industry of the United States than the more exhaustive statistics of the Commission from which those inseparable auxiliaries are excluded.

SUMMARY OF GROSS EARNINGS OF THE RAILWAYS OF THE UNITED STATES DURING FIVE CALENDAR YEARS 1907 TO 1911, INCLUSIVE BY MONTHS AND HALF-YEARLY DIVISIONS.

	1907	1908	1909	1910	1911
Average Mileage	227,000	231,584	234,950	239,543	244,138
	(thousands)	(thousands)	(thousands)	(thousands)	(thousands)
January.....	\$ 199,000	\$ 173,611	\$ 183,264	\$ 211,041	\$ 199,035
February.....	178,300	161,085	174,574	202,825	226,997
March.....	211,700	183,509	205,838	238,725	215,057
April.....	214,800	175,071	197,024	225,856	218,177
May.....	224,800	174,527	201,596	235,134	229,643
June.....	223,000	184,047	210,182	237,988	231,697
Half Year...	\$1,251,600	\$1,051,853	\$1,172,481	\$1,351,570	\$1,320,607
July.....	\$ 228,672	\$ 195,245	\$ 220,351	\$ 230,615	\$ 231,688
August.....	241,303	206,877	236,982	254,005	253,043
September.....	234,386	219,013	246,335	256,647	257,257
October.....	250,575	233,105	260,821	263,464	266,064
November.....	220,445	211,281	247,564	248,559	247,979
December.....	194,304	205,455	222,692	236,835	237,585
Half Year...	\$1,369,688	\$1,270,978	\$1,434,747	\$1,490,128	\$1,493,616
Total.....	\$2,621,288	\$2,322,831	\$2,607,228	\$2,841,699	\$2,814,222
Decrease from Preceding Year.....		\$ 298,457			27,497
Increase over Preceding Year.....			\$ 284,397	\$ 234,470	
Revenue per mile of line.....	\$ 11,547	\$ 10,034	\$ 11,099	\$ 11,865	\$ 11,529

**SUMMARY OF OPERATING EXPENSES OF THE RAILWAYS OF THE UNITED STATES
FOR FIVE CALENDAR YEARS 1907 TO 1911, INCLUSIVE, BY MONTHS AND
HALF-YEARLY DIVISIONS.**

	1907 (thousands)	1908 (thousands)	1909 (thousands)	1910 (thousands)	1911 (thousands)	Operating Ratio	
						1910	1911
January.....	\$134,225	\$132,502	\$132,772	\$153,631	\$161,166	72.79	74.94
February.....	121,500	123,773	125,333	145,849	149,147	71.91	74.93
March.....	142,425	128,200	136,179	160,402	158,003	67.19	69.61
April.....	144,990	124,284	134,615	159,130	153,717	70.45	70.46
May.....	151,740	123,932	135,879	163,361	159,794	69.47	69.58
June.....	150,525	124,208	136,138	160,814	158,933	67.57	68.60
Half Year.....	\$845,405	\$756,902	\$800,918	\$943,190	\$940,760	69.78	71.23
Ratio.....	67.7%	72%	68.31%	69.78%	71.23%	.....	.....
July.....	\$152,992	\$127,978	\$141,894	\$157,458	\$158,016	68.28	68.20
August.....	156,837	131,557	146,465	164,488	164,460	64.76	64.99
September.....	156,631	137,155	150,886	165,067	164,374	64.32	63.90
October.....	166,999	144,195	156,720	169,852	169,978	64.47	63.89
November.....	154,150	136,809	153,181	164,636	167,013	66.23	67.37
December.....	142,631	136,867	154,224	166,478	165,501	70.29	69.68
Half Year.....	\$930,242	\$814,563	\$903,372	\$987,979	\$989,342	66.10	66.24
Ratio.....	68%	64.1%	62.98%	66.10%	66.24%	.....	.....
Total.....	\$1,775,647	\$1,571,465	\$1,704,290	\$1,931,172	\$1,930,103	67.98	68.58
Ratio.....	67.8%	67.7%	65.37%	67.98%	68.58%	.....	.....
Decrease from Preceding Year...		\$204,182			\$1,069		
Increase over Preceding Year...			\$132,825	\$226,881			
Expenses per Mile...	\$ 7,822	\$ 6,786	\$ 7,255	\$ 8,068	\$ 7,906		

SUMMARY OF NET OPERATING REVENUES OF THE RAILWAYS OF THE UNITED STATES FOR FIVE CALENDAR YEARS 1907 TO 1911, INCLUSIVE, BY MONTHS AND HALY-YEARLY DIVISIONS.

	1907 Thousands	1908 Thousands	1909 Thousands	1910 Thousands	1911 Thousands	Decrease or Increase 1911-1910 Thousands
January.....	\$ 64,775	\$ 41,108	\$ 50,491	\$ 57,409	\$ 53,891	Dec. \$ 3,519
February.....	56,800	37,311	49,241	56,976	49,889	" 7,087
March.....	69,275	55,309	69,658	78,322	68,994	" 9,329
April.....	69,810	50,787	62,409	66,725	64,460	" 2,266
May.....	73,060	50,594	65,717	71,772	69,849	" 1,924
June.....	72,475	59,838	74,043	77,173	72,764	" 4,409
Half Year....	\$406,195	\$294,951	\$371,562	\$408,380	\$379,847	Dec. \$28,535
July.....	75,679	67,267	78,456	73,157	73,672	Inc. 515
August.....	84,465	75,319	90,517	89,517	88,583	Dec. 934
September....	77,755	81,858	95,449	91,580	92,882	Inc. 1,302
October.....	83,576	88,909	104,101	93,612	96,084	" 2,472
November....	66,294	74,472	94,383	83,922	80,967	Dec. 2,955
December.....	51,673	68,587	68,467	70,357	72,084	Inc. 1,727
Half Year....	\$439,445	\$456,414	\$531,374	\$502,146	\$504,272	Inc. \$ 2,127
Twelve Months.....	845,640	751,365	902,937	910,527	884,119	Dec. 26,408
Taxes.....	83,156	86,872	94,664	109,560	115,562	Inc. 6,002
Net Operating Income.....	\$762,484	\$664,492	\$808,173	\$800,966	\$768,557	Dec. \$32,410
Per Mile of Line	3,359	2,869	3,441	3,344	3,152	.....

In the next statement the operating revenues and expenses for the last three calendar years are passed in review more in detail, with the proportion each item bears to the gross earnings.

STATEMENT OF OPERATING RECEIPTS AND EXPENSES OF THE RAILWAYS OF THE
UNITED STATES FOR THE CALENDAR YEARS 1909, 1910 AND 1911, FROM
MONTHLY REPORTS TO THE INTERSTATE COMMERCE COMMISSION,
WITH RATIOS

Item	1909	1910	1911
Average Miles Operated.....	(a) 234,950	(b) 239,975	(c) 244,138
OPERATING REVENUES FROM:			
Freight.....	\$1,796,256,314	\$1,966,478,759	\$1,920,685,962
Per Cent of Earnings.....	63.96	69.20	63.25
Passengers.....	601,722,959	647,739,773	661,276,838
Per Cent of Earnings.....	23.10	22.79	23.51
Other Transportation Revenue.....	182,706,090	199,181,220	203,425,002
Per Cent of Earnings.....	7.01	7.01	7.23
Non-transportation Revenue.....	24,080,802	28,299,559	28,834,898
Per Cent of Earnings.....	.93	1.00	1.01
Total Operating Revenues.....	\$2,604,766,165	\$2,841,699,311	\$2,814,222,700
OPERATING EXPENSES:			
Maintenance of Way and Structure.....	339,167,666	383,133,718	367,020,155
Ratio to Revenue.....	13.02	13.49	13.04
Maintenance of Equipment.....	387,155,080	430,928,959	433,500,458
Ratio to Revenue.....	14.86	15.16	15.40
Traffic Expenses.....	53,257,408	53,643,461	59,321,315
Ratio to Revenue.....	2.04	2.07	2.11
Transportation.....	857,339,037	986,756,731	995,926,925
Ratio to Revenue.....	32.92	34.74	35.39
General Expenses.....	65,441,053	71,634,766	74,322,370
Ratio to Revenue.....	2.52	2.52	2.64
Unclassified.....	16,809	74,472	12,163
Total Operating Expenses.....	\$1,702,377,052	\$1,931,172,107	\$1,930,103,386
Ratio to Revenue.....	65.36	67.98	68.58
Net Operating Revenue.....	\$ 902,389,112	\$ 910,527,204	\$ 884,119,314
Ratio to Revenue.....	34.64	32.02	31.42
Profit from Outside Operations.....	3,367,713	1,686,736	2,272,659
Net Revenues.....	\$ 905,756,825	\$ 912,203,940	\$ 886,391,973
TAXES.....	\$ 92,964,510	\$ 109,527,204	\$ 115,561,966
Ratio to Gross Earnings.....	3.56	3.85	4.10
NET OPERATING INCOME.....	812,792,315	802,676,736	770,830,007
Ratio to Earnings.....	31.21	28.25	27.39
Per Mile of Line.....	\$3,460	\$3,345	\$3,157

(a) At the close of the year 1909 the reports covered 236,166 miles of operated line.

(b) " " " " " " 1910 " " " 241,364 " " " "

(c) " " " " " " 1911 " " " 246,000 " " " "

The final line in the above table shows how the net revenues have decreased relatively to miles of line operated. With the exception of 1908, the figures for 1911 are the lowest in a period of seven years. They are not strictly comparable with the figures given in the three preceding tables, for the reason that they include "profit from outside operations" which those tables do not.

THE BUREAU'S STATISTICS FOR 1911.

In the pages which follow is presented a review of the transportation industry of the United States for the year ending June 30, 1911, based on reports from 378 operating railways covering more than 95% of the mileage and over 97% of the railway traffic of the Union. The reports are received on duplicates of the essential pages of the annual reports to the Interstate Commerce Commission, and the summaries follow as closely as may be the forms approved by the practice and experience of the Commission, before innovations impaired their usefulness for comparative purposes. Reports from switching and terminal companies have been included, so far as received, for the satisfying reason that they constitute an essential element in railway operations.

For the sake of brevity, the Interstate Commerce Commission will be referred to herein as the "Commission"; the Commission's "Statistics of Railways in the United States" as "Official Statistics," and "the year ending June 30th" will be implied before the year named unless otherwise specified.

The statements as to foreign railways are compiled from the latest official sources available.

In addition to the acknowledgment already made for the courteous co-operation of railway officials, the writer wishes to record his personal appreciation of the assistance extended to the Bureau by members of federal and state Commissions, who, however differing as to the interpretation of railway statistics, have recognized that no effort should be spared to get the facts before the American people.

SLASON THOMPSON.

CHICAGO, April 11, 1912.

I

RAILWAY MILEAGE IN 1911

Where the Bulletin of Revenues and Expenses of Steam Roads for the month of June, 1911, compiled by the Interstate Commerce Commission from monthly reports, gives the total mileage operated in the United States as 243,732, the returns to this Bureau, compiled from the annual reports to the Commission for the same year, cover 232,117 miles of operated line. This marks an increase of 4,592 miles over the mileage reported to the Bureau in 1910, an increase slightly greater than the new railway construction of the year, which has been reported as 3,695 miles.

While the mileage reporting to the Bureau covers slightly over 95% of the total for the United States, by reason of its location and nature it carries more than 97% of the traffic. It now exceeds the total for which, owing to changes in accounting, we have any complete and consecutive official statistics.

In all studies of contemporaneous American railway statistics, it is essential to bear in mind that the official monthly Bulletins very properly include returns from switching and terminal companies, whereas the official compilation from the annual reports since 1907 arbitrarily do not.

In its report for 1910 the Commission based its assignments per mile for operating and traffic statistics on a single track mileage of 240,830 miles, allowance being made for 10,357 miles operated under trackage rights. In order to arrive at a common basis for comparison, the assignments per mile in 1911 will be figured on 232,117 miles, after deducting 10,101 miles operated under trackage rights.

* * * * *

The first table under this title presents the operated mileage reported to this Bureau in 1911 and 1910, classified by states, in comparison with the official mileage owned in 1910, with relation to area and population:

SUMMARY OF RAILWAY MILEAGE IN THE UNITED STATES, BY STATES, FOR THE YEARS ENDING JUNE 30, 1910 AND 1911, AND ITS RELATION TO AREA AND POPULATION.

	Bureau's Figures		Commission's Figures		Population Per Mile of Line 1910#
	1911 Miles Operated	1910 Miles Operated	1910 Miles Owned	Miles of Line per 100 Sq. Miles of Territory	
Alabama.....	4,994	4,992	5,226	10.19	409
Arizona.....	1,962	1,811	2,097	1.84	97
Arkansas.....	4,253	4,177	5,306	10.10	296
California.....	6,610	6,422	7,772	4.99	306
Colorado.....	5,646	5,598	5,532	5.34	144
Connecticut.....	1,000	1,002	1,000	20.75	1,115
Delaware.....	340	340	337	17.04	604
Florida.....	3,769	3,839	4,431	8.08	169
Georgia.....	6,631	6,498	7,056	12.02	369
Idaho.....	1,925	1,962	2,178	2.61	149
Illinois.....	13,257	12,751	11,878	21.20	474
Indiana.....	7,098	7,345	7,420	20.59	364
Iowa.....	9,987	9,945	9,755	17.55	228
Kansas.....	9,216	9,146	9,007	11.01	184
Kentucky.....	3,494	3,425	3,526	8.77	649
Louisiana.....	4,477	4,294	5,554	12.23	298
Maine.....	2,096	2,068	2,248	7.52	330
Maryland.....	1,326	1,292	1,426	14.35	901
Massachusetts.....	2,087	2,086	2,115	26.31	1,592
Michigan.....	8,360	8,458	9,021	15.69	311
Minnesota.....	8,893	8,596	8,669	10.72	239
Mississippi.....	3,672	3,343	4,506	9.72	399
Missouri.....	8,336	8,329	8,083	11.76	407
Montana.....	4,294	4,221	4,207	2.88	89
Nebraska.....	6,151	6,150	6,067	7.90	196
Nevada.....	1,601	1,685	2,276	2.07	35
New Hampshire.....	1,213	1,213	1,245	13.80	345
New Jersey.....	2,146	2,193	2,260	30.08	1,122
New Mexico.....	2,975	2,939	3,032	2.48	108
New York.....	8,338	8,103	8,430	17.09	1,081
North Carolina.....	4,110	4,089	4,932	10.12	447
North Dakota.....	4,379	4,130	4,201	5.99	137
Ohio.....	9,028	8,906	9,134	22.42	521
Oklahoma.....	5,898	5,648	5,980	8.62	277
Oregon.....	2,125	1,793	2,284	2.39	294
Pennsylvania.....	10,894	10,530	11,290	25.18	678
Rhode Island.....	196	196	212	19.88	2,557
South Carolina.....	2,878	2,878	3,442	11.29	440
South Dakota.....	3,984	3,739	3,947	5.14	148
Tennessee.....	3,587	3,553	3,815	9.15	572
Texas.....	13,081	12,847	14,281	5.44	272
Utah.....	1,819	1,821	1,985	2.42	188
Vermont.....	936	941	1,100	12.06	323
Virginia.....	4,436	4,396	4,534	11.26	454
Washington.....	5,133	4,543	4,875	7.29	234
West Virginia.....	2,885	2,787	3,600	14.99	339
Wisconsin.....	7,106	6,746	7,475	13.53	312
Wyoming.....	1,457	1,457	1,645	1.69	89
Dist. of Columbia.....	52	52	36	59.95	9,174
Canada†.....	1,760	1,383	.....	.....	.....
Mexico‡.....	226	230	.....	.....	.....
United States.....	232,117	227,525	240,438	8.08	382

#Census figures 1910 divided by commission's figures for 1910.

†Mileage operated in Canada by American roads.

‡Mileage operated in Mexico by American roads.

The first two columns of this summary testify to the completeness of the returns to this Bureau, while the last two columns afford indispensable data for the study of the relation of railway facilities to area and population in the territorial divisions of the United States. The student who ignores the difference in conditions in states with over 1,000 inhabitants per mile of line and in those with less than 200 can have no comprehension of the transportation problem in this land of congested cities and vast stretches of sparsely inhabited territory.

How railway mileage has kept pace with the growth of population in the United States during the past twenty-one years is shown in the next summary:

SUMMARY OF RAILWAY MILEAGE IN THE UNITED STATES, 1910 TO 1890, AND ITS RELATION TO AREA AND POPULATION.

Year Ending June 30	Population (Official Calendar) #	Miles of Line Owned	Miles of Line per 100 Sq. Miles of Territory	Inhabitants per Mile of Line
1911	93,983,000	243,732	8.19	385
1910.....	91,972,266	240,438	8.05	382
1909.....	90,556,521	236,868	7.98	382
1908.....	88,933,527	230,494	7.76	378
1907.....	87,320,533	227,671	7.74	370
1906.....	85,702,539	222,575	7.55	373
1905.....	84,084,545	217,018	7.34	378
1904.....	82,466,551	212,577	7.20	379
1903.....	80,848,557	207,187	7.00	384
1902.....	79,230,563	201,673	6.82	388
1901.....	77,612,569	196,075	6.64	391
1900.....	75,994,575	192,941	6.51	393
1899.....	74,318,000	188,277	6.37	395
1898.....	72,917,000	185,371	6.28	394
1897.....	71,592,000	182,920	6.21	390
1896.....	70,254,000	181,154	6.15	384
1895.....	68,934,000	179,176	6.08	382
1894.....	67,632,000	176,603	6.02	379
1893.....	66,349,000	170,332	5.94	377
1892.....	65,086,000	165,691	5.78	380
1891.....	63,844,000	164,603	5.67	380
1890.....	62,947,714	159,272	5.51	384

#For other than census years prior to 1900, and for 1911, the figures of population represent the estimates of the Actuary of the Treasury; between 1900 and 1910 they are estimates of the Bureau of the Census.

From this table it appears that during the past twenty-one years railway mileage in proportion to area has increased over 48% and, as the last column shows, has kept practically level with the increase in population. The variations in the latter regard are as much due

to the eccentricities in statistical data as to the alternating waves of railway construction and immigration.

RAILWAY CONSTRUCTION IN 1911.

During the calendar year 1911, according to the *Railway and Engineering Review*, 3,695 miles of new main line and 3,130 miles of auxiliary tracks were laid in the United States. The former was distributed among the several states as follows:

SUMMARY SHOWING MILEAGE OF RAILWAYS BUILT IN THE UNITED STATES IN THE CALENDAR YEAR 1911, CLASSIFIED BY STATES.

State	Miles Built	State	Miles Built
Alabama.....	25.00	Montana.....	112.55
Alaska.....	47.50	Nebraska.....	30.64
Arizona.....	14.37	Nevada.....	19.47
Arkansas.....	42.69	New Jersey.....	29.99
California.....	137.43	New York.....	17.91
Colorado.....	87.09	North Carolina.....	51.21
Florida.....	183.70	North Dakota.....	232.10
Georgia.....	122.90	Ohio.....	45.81
Idaho.....	182.25	Oklahoma.....	153.08
Illinois.....	20.20	Oregon.....	307.88
Indiana.....	36.93	Pennsylvania.....	61.21
Iowa.....	18.32	South Carolina.....	40.00
Kansas.....	103.12	Tennessee.....	66.73
Kentucky.....	132.70	Texas.....	481.98
Louisiana.....	75.51	Utah.....	35.65
Maine.....	15.00	Virginia.....	17.67
Maryland.....	17.00	Washington.....	193.16
Michigan.....	49.26	West Virginia.....	90.24
Minnesota.....	116.50	Wisconsin.....	220.21
Mississippi.....	22.00	Wyoming.....	26.00
Missouri.....	12.50		
Total.....			3695.46
Auxiliary Track.....			3130.32
Total all Tracks.....			6825.78

The same authority states that 1,906 miles of main track and 316 miles of auxiliary track were added to the railway mileage of Canada during the year 1911.

RAILWAY MILEAGE IN OTHER COUNTRIES.

In order that the reader may appreciate clearly, in the light of contrast, how much more extensive in proportion to area and population railway facilities in the United States are when compared with those of foreign countries, the next summary gives the railway mileage for foreign countries in 1909, as compiled by the *Archiv fur Eisenbahnwesen*, May-June, 1911.

SUMMARY OF THE WORLD'S RAILWAYS AND RATIO OF MILEAGE TO AREA AND
POPULATION IN EACH COUNTRY IN 1909.

Countries	Miles 1909	Miles of Line per 100 Sq. Miles 1909	Inhabitants per Mile of Line
I EUROPE			
Germany.....	37,338	17.9	1,613
Austria-Hungary (including Bosnia and Herzegovna)	27,165	10.5	1,724
Great Britain and Ireland.....	23,286	19.2	1,786
France.....	30,186	14.6	1,299
Russia in Europe (including Finland 2,182 miles).....	36,912	1.	2,857
Italy.....	10,439	9.5	3,125
Belgium.....	5,144	45.2	1,300
Luxemburg.....	318	31.7	745
Netherlands.....	1,926	15.1	2,632
Switzerland.....	2,850	17.9	1,160
Spain.....	9,293	4.8	2,000
Portugal.....	1,798	5.0	3,030
Denmark.....	2,165	14.6	1,042
Norway.....	1,865	1.4	1,190
Sweden.....	8,573	5.0	599
Servia.....	421	2.3	5,880
Roumania.....	2,085	4.0	2,858
Greece.....	982	3.9	2,500
Bulgaria.....	1,085	2.9	4,000
Turkey in Europe.....	968	1.4	6,250
Malta, Jersey, Isle of Man.....	68	16.1	5,550
Total for Europe 1909.....	204,864	5.5	1,923
“ “ “ 1908.....	201,619	5.3	1,941
“ “ “ 1907.....	199,345	5.3	1,887
“ “ “ 1906.....	196,437	5.2	1,993
“ “ “ 1905.....	192,507	5.1	2,084
“ “ “ 1904.....	189,806	5.0	2,084
“ “ “ 1903.....	185,685	5.0	2,084
“ “ “ 1902.....	183,989	4.9	2,127
“ “ “ 1901.....	180,817	4.8	2,174
“ “ “ 1900.....	176,396	4.7	2,220
“ “ “ 1899.....	172,953	4.6	2,220
“ “ “ 1898.....	167,614	4.4	.....
“ “ “ 1897.....	163,550	4.3	.....
“ “ “ 1896.....	160,030	4.2	.....
Increase in thirteen years.....	44,834	.....	.....
II AMERICA			
Canada.....	24,099	0.6	269
United States (including Alaska).....	237,182	6.6	370
Mexico.....	15,013	1.9	971
Brazil.....	12,997	0.32	1,639
Argentine Republic.....	15,850	1.4	307
Chili.....	3,290	1.0	1,010
Peru.....	1,471	0.32	3,125
Uruguay.....	1,447	2.1	720
Total America including other Divisions.....	319,281	1.95	552

SUMMARY OF THE WORLD'S RAILWAYS AND RATES OF MILEAGE TO AREA AND POPULATION IN EACH COUNTRY IN 1909—Continued.

Countries	Miles 1909	Miles of Line per 100 Sq. Miles 1909	Inhabitants per Mile of Line
III ASIA			
Russia in Central Asia.....	4,066	1.9	2,326
Siberia and Manchuria.....	6,423	0.13	1,099
China.....	5,296	0.13	83,300
Japan (including Corea).....	5,767	2.4	11,000
British India.....	31,483	1.6	9,090
Total Asia including other Divisions.....	61,788	0.38	14,660
IV AFRICA			
Egypt.....	3,503	1.0	3,226
Algiers and Tunis.....	3,134	1.0	2,128
South African Union.....	8,939	0.9	770
Total Africa including other Divisions.....	20,805	0.18	6,180
V AUSTRALIA			
New Zealand.....	2,681	2.6	381
Victoria.....	3,430	3.9	370
New South Wales.....	3,763	1.3	423
South Australia.....	2,082	0.16	208
Queensland.....	3,843	0.6	236
Tasmania.....	627	2.4	300
West Australia.....	2,321	0.16	203
Total Australia including Islands.....	18,838	0.6	318
RECAPITULATION			
I Europe.....	204,864	5.5	1,923
II America.....	319,281	1.95	552
III Asia.....	61,788	0.38	14,660
IV Africa.....	20,805	0.18	6,180
V Australia.....	18,838	0.6	318
Total for the World.....	625,576	1.2	2,726
" " " " 1908.....	611,434		
Increase.....	14,142		

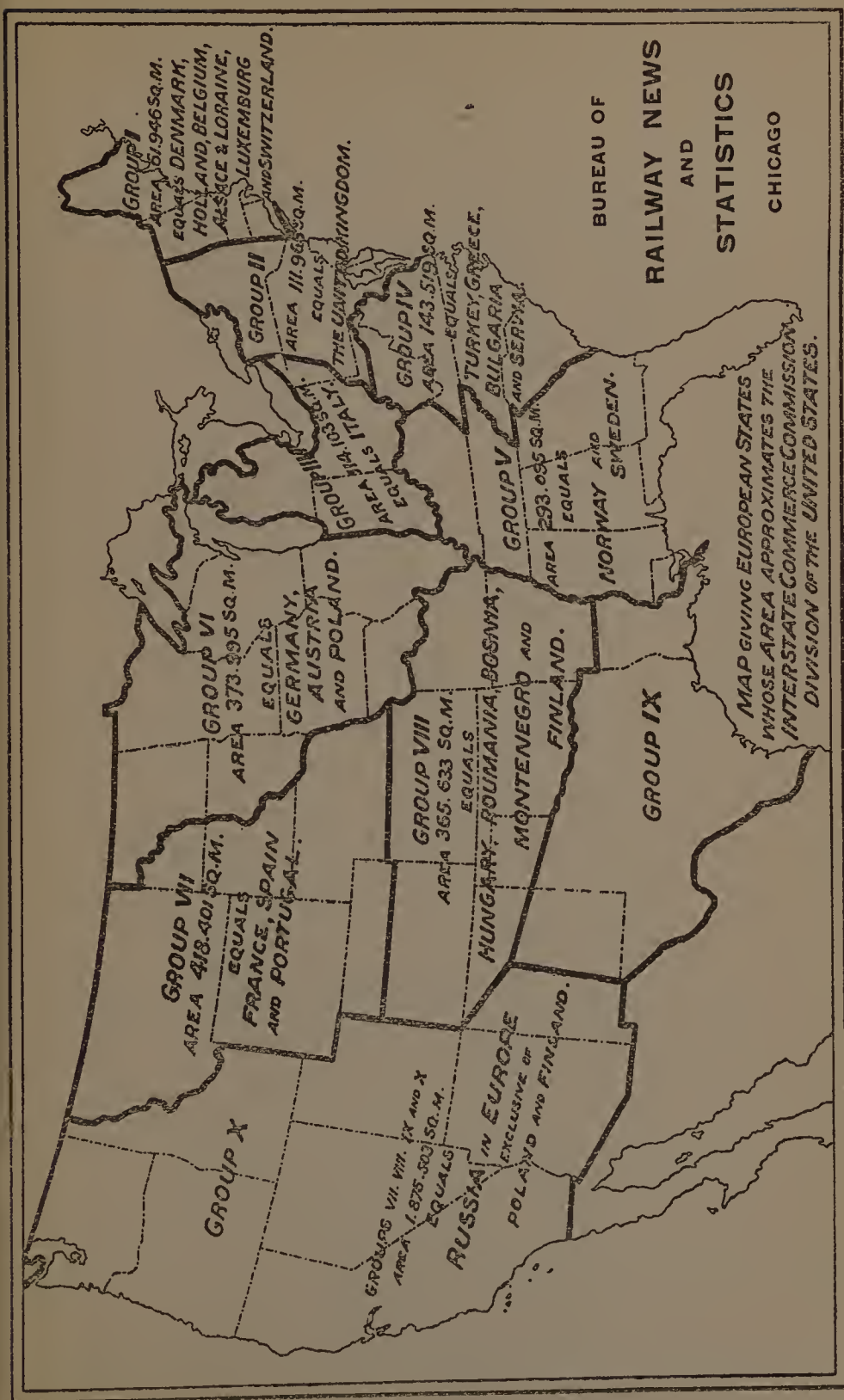
RELATION OF RAILWAYS TO AREA AND POPULATION.

Although this table is favored by railway statisticians in comparing railway conditions relatively to area and population, it is doubtful whether it conveys an adequate impression of the exceptionally favorable transportation facilities enjoyed by the inhabitants of this continent, and especially those of the United States and Canada. For instance, the figures mean that the United States with 800,000 square miles less territory and not one-quarter the population has 36,000 more miles of railway than all Europe,

while Canada, having a territory in which the United Kingdom could be lost thirty times, and only one-sixth the population, has actually more railway mileage than the parent kingdom.

In the United States each inhabitant commands the service of 4-1/2 times as many miles of railway as is available to each inhabitant of the British Isles, and he is backed in his commands and demands by the Interstate Commerce Commission.

The accompanying map giving the European states apportioned into the Interstate Commerce Commission's ten United States divisions, whose areas they approximate, will enable the student to comprehend at a glance the disparity in the mere physical conditions between Europe and America. The population and railway mileage of these divisions, according to the latest reports, were as follows:



Division	United States 1910		Europe	
	Population	Miles of Railway	Population	Miles of Railway
I.....	6,552,681	8,121	21,756,000	13,766
II.....	21,145,629	23,815	45,450,971	23,286
III.....	9,985,342	26,172	34,565,198	10,439
IV.....	7,004,418	13,966	15,768,797	3,456
V.....	11,771,641	27,976	7,868,000	10,438
VI.....	14,445,528	51,830	105,269,000	52,863
VII.....	2,225,609	13,935	64,387,984	41,277
VIII.....	7,947,263	33,987	30,402,000	17,458
IX and X.....	10,892,056	41,028	119,193,000	35,156
Total.....	91,972,137	240,831	444,660,940	208,139

Group VI, which practically equals Germany, Austria and Poland in area and railway mileage, is here seen to have less than one-seventh of the population of those European countries. This means that the citizens of the States in Group VI have more than seven times the railway mileage at their service per capita than the citizens of Germany, Austria and Poland.

The totals for the United States and Europe show that the ratio of railway mileage to population favors the former by nearly 6 to 1.

By the aid of the map and the table of I. C. C. groups on this page the student can figure out for himself many instructive deductions.

MILEAGE OF ALL TRACKS IN 1911.

The next statement gives the mileage of all tracks, including yard tracks and sidings, which are the indispensable auxiliaries to the transportation service of the railways of the United States, for the year 1890 to 1911 inclusive:

SUMMARY OF MILEAGE OF SINGLE TRACK, SECOND, THIRD AND FOURTH TRACK AND YARD TRACK AND SIDINGS IN THE UNITED STATES, 1890 TO 1911.

Year	Single Track	Second Track	Third Track	Fourth Track	Yard Track and Sidings	Total Mileage Operated (all Tracks)
1911 Bureau (95%).....	232,117	23,454	2,429	1,677	87,524	347,201
1910 Official	*240,831	21,659	2,206	1,489	85,581	351,767
1909 "	*235,402	20,949	2,169	1,453	82,376	342,351
1908 "	*230,494	20,209	2,081	1,409	79,452	333,646
1907 "	227,455	19,421	1,960	1,390	77,749	327,975
1906 "	222,340	17,396	1,766	1,279	73,760	317,083
1905 "	216,973	17,056	1,609	1,215	69, 41	306,796
1904 "	212,243	15,824	1,467	1,046	66,492	297,073
1903 "	205,313	14,681	1,303	963	61,560	283,821
1902 "	200,154	13,720	1,204	895	58,220	274,195
1901 "	195,561	12,845	1,153	876	54,914	265,352
1900 "	192,556	12,151	1,094	829	52,153	258,784
1899 "	187,543	11,546	1,047	790	49,223	250,142
1898 "	184,648	11,293	1,009	793	47,589	245,333
1897 "	183,284	11,018	995	780	45,934	242,013
1896 "	182,428	10,685	990	764	44,912	240,129
1895 "	180,657	10,639	975	733	43,888	236,894
1894 "	178,708	10,499	953	710	42,661	233,533
1893 "	176,461	10,051	912	668	42,043	230,137
1892 "	171,563	9,367	852	626	39,941	222,351
1891 "	168,402	8,865	813	599	37,318	215,999
1890 "	163,597	8,437	760	561	35,255	208,612

*Since 1908 the official mileage is exclusive of switching and terminal companies. In 1908 these had 1,624 miles of main track and 2,085 of yard tracks and sidings; in 1909 they reported 1,623 miles of main track and 2,384 of yard tracks and sidings and in 1910 they reported 1614 and 2270 miles respectively.

If the mileage of auxiliary track given in the above table for 1911 be added to the single track mileage covered by the monthly reports to the Interstate Commerce Commission for June, 1911 (243,732 miles), it yields a total of 358,816 miles of all track, an increase of over 10,000 for the year. As each mile of track stands for an expenditure of \$40,000, this shows that during the year ending June 30, 1911, at least \$400,000,000 was irrevocably invested in fitting our railways to the transportation needs of the American people.

In other words American railways, in one year of great business depression, were forced by the normal but irresistible pressure of national growth to expend on additional facilities more than the estimated cost of the Panama Canal!

This table shows that there were almost as many miles of auxiliary track in the United States in 1911 (115,084 miles) as the combined single track mileage of Germany, Austria, Hungary, France and the British Isles (117,975).

DISTRIBUTION OF RAILWAY MILEAGE.

The next summary shows the distribution of all American railway track as made by the I. C. C. into territorial groups during the years 1890 and 1910:

SUMMARY OF MILEAGE, BY GROUPS, SHOWING LENGTH OF SINGLE TRACK, SECOND, THIRD AND FOURTH TRACKS, YARD TRACK AND SIDINGS, 1890 TO 1910.

Group Covered	Single Track Miles	Second Track Miles	Third Track Miles	Fourth Track Miles	Yard Tracks and Sidings Miles	Total All Tracks Miles
I Me., N. H., Vt., Mass., R. I., and Conn.	1910... 8,121 1890... 7,425	1,681 1,248	193 29	132 19	4,080 2,399	14,207 11,120
II N.Y., N.J., Penn., Del., Md. and Dist. of Col.	1910... 23,815 1890... 17,237	7,609 4,948	1,284 664	941 507	16,101 7,533	49,749 30,899
III Ohio, Ind., and So. Pen. of Mich.	1910... 26,172 1890... 20,903	4,373 1,048	517 12	291 3	13,829 6,179	45,181 28,145
IV Va., W. Va., N. C. and S. C.	1910... 13,966 1890... 8,658	1,027 26	5	3	3,983 1,115	18,984 9,799
V Ga., Fla., Ky., Tenn., Ala., and Miss.	1910... 27,976 1890... 15,877	713 4	2	2	7,748 2,149	36,441 18,300
VI Ill., Ia., Wis., Minn. and parts Mich., Mo. N. D. and S. D.	1910... 51,830 1890... 38,198	4,581 1,012	197 54	113 31	17,244 7,594	73,965 46,889
VII Neb., Mont., Wy. and parts of Colo., N. D. and S. D.	1910... 13,935 1890... 8,807	590 13	2	2	3,559 1,307	18,089 10,127
VIII Kan., Ark., Okla. and parts of Mo., Colo. Tex. and N. M.	1910... 33,987 1890... 21,173	548 93	6 2	6 1	8,786 3,111	43,333 24,380
IX La., Tex. (except Pan- handle) and parts of N. M.	1910... 18,375 1890... 7,988	96 .....	..... .....	..... .....	4,069 936	22,540 8,924
X Wash., Ore., Cal., Ida., Nev., Utah, Ariz., and parts N. M.	1910... 22,653 1890... 10,135	442 45	..... .....	..... .....	6,181 1,387	29,276 11,567
United States.....	1910... 240,831 1890... 156,404	21,659 8,437	2,206 760	1,489 561	85,581 33,711	351,76 199,875

The blank spaces in the columns of third and fourth track indicate territory in the United States where for twenty years and more there has not been enough traffic to call for these barometers of its density and progress. In Texas (Group IX), which leads the roll of states in single track mileage, there has not been sixty miles of double track built during the last decade.

MILEAGE AND TRACK OF BRITISH RAILWAYS.,

During the year ending December 31, 1910, British railways showed an increase over the preceding year of 107 miles of line

and 339 miles of track of all kinds, as appears in the following statement of the length of each track for 1900 and the five years since 1906 inclusive, compiled from returns to the British Board of Trade:

MILEAGE OF BRITISH RAILWAYS, 1910 TO 1900.

Description of Track	1910	1909	1908	1907	1906	1900
Single track (miles).....	23,389	23,280	23,209	23,112	23,063	21,855
Second track.....	13,189	13,121	13,048	12,963	12,934	12,162
Third track.....	1,517	1,500	1,435	1,385	1,363	898
Fourth track.....	1,192	1,175	1,141	1,103	1,091	729
Fifth track.....	236	230	208	195	186	73
Sixth track.....	143	138	122	117	111	36
Seventh track.....	70	67	59	51	47	10
Eighth to 20th tracks...	115	111	94	87	75	2
Sidings.....	14,460	14,350	14,353	14,145	14,032	13,069*
Total trackage.....	54,311	53,972	53,669	53,189	52,904	48,834

*Sidings for 1900 computed from returns for 1903.

From this statement it appears that the single track mileage of British roads has increased only 1,534 miles in ten years, second track mileage 1,027 and all tracks 5,477. During the same period the single track mileage of American roads increased 48,275 miles, second tracks 1,303 miles and all tracks 92,983 miles.

What is more noteworthy is that the vastly greater expansion of railway facilities in the United States was effected with an increase of approximately \$4,324,395,560 in capitalization, or \$46,500 per mile of track, whereas the addition to the British trackage was attended by an increase of \$1,007,567,000 in capital, or \$184,000 per mile of track. As there is no questioning the honesty of British railway financing, however one may regard its wisdom, these figures testify to the wise and economical basis on which American railways are financed.

II EQUIPMENT



1832

1876

1909

Courtesy of the Baldwin Locomotive Works.

The 231-ton Mallet locomotive in the above cut, which for two years led the procession from the little 8-ton Old Ironsides in the rear to the articulated monsters of today, has been in its turn relegated to second place by a larger type weighing without tender 308 tons, or including tender 425 tons. An illustration of this giant drawing a "demonstration train" will be found stretching across the center pages of this pamphlet. That the evolution of which engines are the motive power and visible expression is general is proved by the advance in the average weight of locomotives from 73 tons in 1910 to 76 tons in 1911, accompanied by an increase in the capacity of freight cars from 35 to 36.5 tons.

EQUIPMENT BUILT IN 1911.

According to the *Railway Age-Gazette* (Dec. 29, 1911), car and locomotive builders reported the construction of 3,530 locomotives, 4,246 passenger cars and 72,161 freight cars during the year. This brings the data in the following table down to the close of 1911:

SUMMARY SHOWING THE NUMBER OF CARS AND LOCOMOTIVES BUILT DURING
THE YEARS 1899 TO 1911.

Year	Locomotives	Number Passenger Cars	Freight Cars
1911*.....	3,530	4,246	72,161
1910*.....	4,755	4,412	185,357
1909*.....	2,887	2,849	96,419
1908*.....	2,342	1,716	76,555
1907*.....	7,362	5,457	284,188
1906*.....	6,952	3,167	243,670
1905*.....	5,491	2,551	168,006
1904.....	3,441	2,144	60,806
1903.....	5,152	2,007	153,195
1902.....	4,070	1,948	162,599
1901.....	3,384	2,055	136,950
1900.....	3,153	1,636	113,631
1899.....	2,475	1,305	119,886
Total.....	54,994	35,493	1,875,423

*Includes Canadian output.

On consulting the figures of the equipment in service on succeeding pages, it will be found that the totals of locomotives and cars built since 1898 begin to approach the numbers on hand in 1911. This indicates that in thirteen years there has been a virtual replacement of the entire equipment existing at that time! Of course this is only approximately true, but it is suggestive of a process eternally true in nature and in all progress. Only a scattered and battered remnant of the locomotives (36,234), passenger cars (33,595) and freight cars (1,248,826) of 1898 are to be found cumbering the rails and sidings of American railways today. American railway methods are as wasteful as nature, but they produce great results.

NUMBER AND WEIGHT OF LOCOMOTIVES FOR NINE YEARS—
1911 to 1902.

The next summary gives the number, tractive power and weight of steam locomotives for the decade since the Commission has included their capacity in its reports:

Year	Number	Tractive Power (Pounds)	Weight without Tender (Tons)	Average Weight (Tons)
1911 Bureau.....	59,909	1,686,068,353	4,581,080	76.5
1910 Official	*53,240	1,588,894,480	4,224,208	73.5
1909.....	*56,468	1,503,971,444	4,056,733	72.0
1908†.....	56,867	1,498,793,551	4,012,553	71.0
1907.....	55,388	1,429,626,658	3,828,045	69.1
1906.....	51,672	1,277,865,673	3,459,052	66.9
1905.....	48,357	1,141,330,082	3,079,673	63.6
1904.....	46,743	1,063,651,261	2,889,492	62.1
1903.....	43,871	953,799,540	2,606,587	59.4
1902.....	41,225	839,073,779	2,323,877	56.3
Increase in nine years to 1911.....	45.3%	100.9%	97.2%	35.8%

*Excludes locomotives in service of switching and terminal companies and unclassified locomotives.

†Excludes 831 unclassified locomotives, but includes 858 locomotives of switching and terminal companies.

No other statistics present in as concrete form the means adopted by the railways to meet the demands made upon them as do the figures of this table. These show that in one year less than a decade they have doubled the tractive power of their locomotives. This has been effected by an increase of 45.3% in number, and of 35.8% in their average weight.

In the meantime the gross earnings of this motive power have increased only 62.1%.

It is noteworthy that where the tractive power of the average locomotive in 1910 was 370 pounds per ton weight, the same average in 1911 was only 368 pounds. In 1902 the average was 361 pounds.

As there is an undefined relation between the cost per ton, tractive power and weight of locomotives, it is evidently of the highest importance that there should be no recession in the tractive power per ton. There is undoubtedly a limit to the economical increase in weight and size, except as attended by improved models.

At the average price of \$182 per ton, arrived at through extensive inquiries in 1910, the 59,909 locomotives in the service of American railways in 1911 represent an investment of at least \$834,000,000, which yields an average of nearly \$14,000 per locomotive. This is fully \$1,000 below the average price of the past ten years.

PASSENGER AND FREIGHT CARS.

The next summary gives the number of passenger cars and the number and capacity of freight cars since 1902, the first year for which capacity was reported:

SUMMARY OF PASSENGER AND FREIGHT CARS, AND CAPACITY OF LATTER, SINCE 1902.

Year	Passenger Service	Freight Service		Average Tons	Company's Service Number
		Number	Capacity Tons		
1911 Bureau.....	48,479	2,160,408	80,934,856	37.5	111,605
1910 Official	*47,059	2,135,121	76,894,356	36	108,115
1909.....	*45,534	2,071,338	73,137,546	35	99,090
1908*.....	45,117†	2,096,522	73,086,522	35	96,762
1907.....	43,973	1,991,557	67,216,144	34	91,064
1906.....	42,282	1,837,914	59,196,230	32	78,736
1905.....	40,713	1,731,409	53,372,552	31	70,749
1904.....	39,752	1,692,194	50,874,723	30	66,615
1903.....	38,140	1,653,782	48,622,125	29	61,467
1902.....	36,987	1,546,101	43,416,977	28	57,097
Nine years' increase‡.....	31.1%	39.7%	86.4%	33.9%	95.5%

*Does not include cars in service of switching and terminal companies.

†Includes 11,067 cars of switching and terminal companies and excludes 4,550 cars for which complete returns were not secured.

‡Complete returns will increase those percentages.

Here, as in the case of locomotives, it will be seen that it is only the increase in capacity that enables the railways to keep pace with the demands made upon them. Numerically considered, the increase since 1902 would be wholly inadequate to handle the

traffic of 1911, but an increase in average capacity from 28 tons to 36.5 tons has sufficed without providing sufficient margin for expansion.

The table shows an increase of only 168,851 freight cars during the past four years. As there were 536,505 built during the same period, this supports the claim that it takes 100,000 cars to replace those destroyed or abandoned.

NUMBER AND CAPACITY OF DIFFERENT CLASSES OF FREIGHT CARS 1902 AND 1910.

The gradual retirement of freight cars of 25 tons and less before the introduction of cars of greater capacity is shown in the following statement:

Class	Capacity Pounds	1902	1910	Increase or Decrease Per Cent	
I.....	10,000	5,122	1,894	Dec.	63.0
II.....	20,000	15,615	5,254	"	66.4
III.....	30,000	46,353	4,896	"	89.4
IV.....	40,000	327,342	106,741	"	67.4
V.....	50,000	246,684	125,228	"	49.3
VI.....	60,000	634,626	826,185	Inc.	30.2
VII.....	70,000	22,493	39,310	"	74.8
VIII.....	80,000	158,179	634,676	"	301.2
IX.....	90,000	310	6,346	"	1,947.1
X.....	100,000	48,834	370,001	"	657.7
XI.....	110,000	389	12,929	"	3,223.6
XII.....	120,000	43	54	"	25.6
All over.....	120,000	2	17	"	750.0

The most significant feature about this table is, to use an Irishism, not apparent on its face. It is obvious that the number of 40-ton cars in 1911 exceeded the 30-ton cars in 1902, but it has to be recalled that the number of the latter reported in 1909 was 830,612 to toll the passing of the 30-ton car from its numerical pre-eminence as the typical American freight car. A decrease of one-half of one per cent. is not "so wide as a church door, but 'tis enough" to mark the beginning of the end.

For more than two decades up to June 30, 1909, there had been a steady increase in the number of 30-ton cars. In 1909 the aggregate capacity of the 30-ton cars exceeded that of the 40-ton cars by 4,120,520 tons. In 1910 the excess was on the side of the larger car by 601,490 tons.

Another noteworthy fact of speculative significance shown by this table is that there was a positive decrease from 1909 in the

number of 50-ton cars. This, however, was more than offset by a marked increase in the number of 55-ton cars. The practical railway operator will ponder these changes deeply, for they are the joint report of Experiment and Experience on one of the live problems of railway economics.

COST OF EQUIPMENT.

Conservative estimates place the cost of locomotives at \$15,000, of passenger cars at \$6,500, and of freight cars at \$1,000. As these are more nearly minimum than maximum figures, it is safe to place the approximate value of all equipment of American railways at \$3,441,119,500, divided as follows:

232,117 miles	
59,909 Locomotives @ \$15,000.....	\$ 898,635,000
48,479 Passenger cars @ \$6,500.....	315,113,500
2,160,408 Freight cars @ \$1,000.....	2,160,408,000
111,605 Company cars @ \$600.....	66,963,000
Total.....	\$3,441,119,500

The single item of maintenance of equipment for the roads represented in this table for the year 1911 amounted to \$423,250,273.

EQUIPMENT BY I. C. C. GROUPS.

Railway equipment in the United States was assigned by the Interstate Commerce Commission in 1910 to the following territorial groups:

SUMMARY SHOWING DISTRIBUTION BY INTERSTATE COMMERCE COMMISSION GROUPS IN 1910.*

Territory Covered	Locomotives	Cars Passenger Service	Cars Freight Service	Cars Company's Service
Group I.....	3,297	5,356	83,091	4,133
Group II.....	13,607	12,281	516,299	18,803
Group III.....	8,994	5,593	402,915	14,373
Group IV.....	3,102	2,097	123,831	4,887
Group V.....	4,700	3,403	170,786	8,830
Group VI.....	10,707	7,611	428,353	18,911
Group VII.....	2,480	1,683	74,166	7,536
Group VIII.....	5,971	3,874	189,138	14,471
Group IX.....	2,427	1,506	60,015	4,812
Group X.....	3,663	3,636	86,527	11,350
United States.....	53,947	47,095	2,135,121	108,115

*Exclusive of locomotives in service of switching and terminal companies.

NUMBERS OF DIFFERENT CLASSES OF FREIGHT CARS.

The numbers of the several classes or kinds into which freight cars are divided, as reported to the Commission since 1902, are shown in the following statement: *

	Box Cars	Flat Cars	Stock Cars	Coal Cars	Tank Cars	Refrigerator Cars	Other Cars
1910.....	906,577	153,918	77,584	878,689	7,434	30,918	78,411
Average capacity in Tons.....	33	33	30	41	39	30	37
1909.....	941,533	154,630	73,494	792,291	6,630	28,204	74,556
1908.....	950,209	159,749	76,219	805,185	6,888	27,930	70,054
1907.....	904,821	156,860	69,997	746,670	5,972	33,017	68,080
1906.....	843,118	146,908	64,202	636,717	5,324	31,782	55,584
1905.....	802,964	146,050	62,988	632,171	4,918	26,844	51,685
1904.....	780,445	147,226	64,270	622,568	4,520	22,735	46,577
1903.....	765,820	154,074	61,790	595,963	4,421	21,454	47,093
1902 #.....	708,861	142,303	57,668	534,448	3,533	18,222	40,957
Average capacity in Tons.....	27	26	25	31	30	26	27

*Exclusive of 40,109 cars for which complete returns were not secured, a condition which did not recur subsequently.

The most significant feature of this table is that the number of flat cars should have remained so nearly stationary during the nine years it covers. In fact, there were fewer flat cars in 1910 than in 1903, the first year the Commission had anything like complete returns. However, the capacity of the cars of this class was increased 25 per cent.

GERMAN FREIGHT CAR EQUIPMENT.

By way of comment on the foregoing, the next statement gives the freight car equipment of the government owned and operated railways of Germany during the last nine years for which information is available:

	Uncovered Wagons		Covered Wagons		Total Freight Wagons	
	Number	Capacity Average Tons	Number	Capacity Average Tons	Number	Capacity Average Tons
1909.....	163,829	13.44	378,424	13.56	542,253	13.52
1908.....	159,102	13.38	362,644	13.36	521,746	13.36
1907.....	152,753	13.26	345,170	13.16	497,923	13.20
1906.....	141,946	13.08	325,118	12.98	467,064	13.02
1905.....	134,763	12.92	307,611	12.82	442,374	12.86
1904.....	125,498	12.62	300,580	12.72	426,078	12.68
1903.....	122,027	12.42	295,388	12.62	417,415	12.56
1902.....	122,516	12.34	291,210	12.52	413,726	12.44
1901.....	122,059	12.14	288,114	12.42	410,108	12.34
Increase.....	34.8%	10.07%	31.3%	9.2%	32.2%	9.5%

These figures include cars in the government, or company's, service excluded in American statistics.

If the student will refer back to the table giving the number and capacity of American freight cars, he will find that between 1902 and 1911 they increased 39.7% in number and 30.4% in tons per car, against the 32.2% and only 9.5% respectively for the freight equipment of the German railways. In the meanwhile the population of Germany increased 15.1% and the freight tonnage 50%. No wonder there has been an almost chronic car shortage on German railways.

In comparing American and German freight car equipment, it should be further borne in mind that the latter are operated without automatic couplers or train brakes. Only 2% of them have more than four wheels and only 35% of them are equipped with any description of brake contrivance (*bremsvorrichtungen*). They have each about one-third the capacity of American cars.

THE SURPLUS OF FREIGHT CARS.

The varying surplus of freight cars which has existed since November, 1907, showed an increase in 1911 over 1910, as appears in the next statement compiled from the reports of the Committee on Car Efficiency of the American Railway Association:

FREIGHT CAR SHORTAGES AND SURPLUS, BY MONTHS, FROM JANUARY, 1907, TO FEBRUARY, 1912.

Month	1907 Shortage	1908 Surplus	1909 Surplus	1910 Surplus	1911 Surplus	1912 Surplus
January.....	110,000	342,580	333,019	52,309	110,432	102,479
February.....	150,000	322,513	301,571	51,600	156,355	50,886
March.....	.....	297,042	291,418	45,315	208,527	46,028
April.....	100,000	413,605	282,328	84,887	187,219	.....
May.....	60,000	404,534	273,890	127,148	188,847	.....
June.....	40,000	349,944	262,944	129,508	169,006	.....
July.....	20,000	308,680	243,354	143,824	165,508	.....
August*.....	15,000	253,003	159,424	105,564	108,000	.....
September.....	60,000	133,792	78,798	54,890	70,722	.....
October†.....	90,757	110,912	35,977	33,735	48,854	.....
November.....	57,003	132,829	39,528	34,581	45,290	.....
December (surplus).....	209,310	222,077	58,354	62,118	88,646	.....

*In July and August, 1907, there was a net surplus.

†In October, 1909, the surplus in one section was offset by a shortage in another section.

The figures show an average surplus of 129,000 cars during the calendar year 1911. According to the Committee, the marked decrease since the New Year was rather due to zero weather than

to any change in business conditions. It indicates the difficulty of moving cars to fill orders in extremely cold weather such as prevailed in January, 1912.

These figures include returns from Canadian roads.

FREIGHT CAR PERFORMANCE.

That freight car efficiency rises and falls in response to the pressure put on it by traffic is the chief significance of the following statement compiled from the statistical Bulletin of the Committee on Relations Between Railroads of the American Railway Association, which, like the statement immediately preceding, covers Canadian as well as American railways:

SUMMARY SHOWING THE AVERAGE PERFORMANCE OF AMERICAN AND CANADIAN FREIGHT CARS DURING THE YEARS ENDING JUNE 30, 1911, 1910, AND 1909, AND AVERAGE CAR LOAD IN 1911.

Month	Average Miles per Day per Car			Average Ton Miles per Car per Day			Average Tons per Loaded Car 1911
	1911	1910	1909	1911	1910	1909	
Year Ending June 30.							
July.....	22.8	22.0	20.0	323	309	275	21.9
August.....	23.2	23.2	20.8	358	340	292	22.0
September.....	24.2	24.3	22.0	375	367	320	21.6
October.....	24.8	25.6	23.8	376	394	346	21.5
November.....	24.3	25.4	23.5	385	405	341	22.5
December.....	22.7	22.2	22.3	349	342	332	21.8
January.....	22.1	22.2	20.9	331	347	293	21.9
February.....	22.6	22.8	21.7	330	376	306	21.4
March.....	23.2	24.8	22.7	332	384	330	20.8
April.....	23.3	24.0	22.4	317	340	310	20.4
May.....	23.7	24.1	22.5	338	349	304	21.2
June.....	22.9	24.5	22.4	338	362	314	21.1

The improvement in the performance of American freight car equipment noted in 1910 apparently culminated in October, 1911. Since then there has been a recession, although not reaching the lower level of 1909. The average load per car was fairly well maintained with 22.5 as the maximum and 20.4 as the minimum in 1911, against 22.7 and 20.7 tons respectively in 1910.

During the calendar year 1911, with November and December computed, the percentage of cars in the shops was 7.10 against 6.11% in 1910, 7.13% in 1909, 8.39% in 1908, and 5.47% in 1907. These figures serve as a barometer of business. They mean that during the year an average of 153,360 cars were undergoing repairs against 130,000 in 1910. At one time in July, 1911, there

were 200,000 freight cars in the shops, to which they could be readily spared, as at that time the roads had a surplus of 165,000 cars on their tracks.

SAFETY APPLIANCES.

The reports concerning the equipment of rolling stock with train brakes and automatic couplers have lost their significance, for practically all classes of cars are so equipped—the proportions being 98% and 99.7% respectively. If American railways are not the safest in the world, it is not for lack of safety appliances.

BLOCK SIGNALS.

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The mileage of railway in the United States worked under the block system increased less than 2,000 miles last year, there being an actual decrease in the mileage operated by the manual system, as shown in the following statement compiled from figures given by the *Railway Age-Gazette* for 1911 compared with those reported to the Interstate Commerce Commission for 1910:

System	Single Track (Miles)	Two or More Tracks (Miles)	Total 1911 (Miles)	Total 1910 (Miles)
Automatic Block Signals.....	9,465	10,530	19,995	17,711
Non-Automatic Block Signals.....	44,648	8,423	53,071	53,558
Total.....	54,113	18,953	73,066	71,269
Less having two Systems.....			25	
Increase.....			73,041 1,772	

After four years of patient and painstaking inquiry into the subject, the *Block Signal and Train Control Board* has reported to the Commission that the development of the automatic stop has not reached a point where in the opinion of the Board its adoption by legislative compulsion would be wise. In all, 1,081 devices have been submitted to the Board for examination. Of these, apparently only one has reached a stage of practical development where when “constructive faults” that are pointed out are remedied, with proper inspection and maintenance it might be reasonably reliable and “would tend to promote safety upon a railway using it.”

The Board hesitates to make recommendations because the results from piecemeal legislation to promote safety in the operation

of railways has so far produced "results not at all commensurate with its cost both to the public and the railroads." It does not, however, boldly face the fact that all these efforts to make railway operation safe by patent appliances and legislative enactments are "barking up the wrong tree." When automatic discipline and observance of rules are as universal as automatic couplers on American railways, there will be an automatic diminution in the total of railway casualties.

The Board, however, has the courage to lift a corner of the curtain behind which for twenty years the promoters of patent safety appliances have directed legislative campaigns. In regard to the examination of these devices it says:

"This Board can do no more than render an opinion concerning the merits of devices examined, and when favorable opinions are rendered it has only the effect to enable the proprietor of the approved device to advertise more extensively. A further evil in the situation is that proprietors of approved devices, and even many of those that are not approved, are soliciting Congress for legislation compelling the railroads to use their particular devices."

This is not the shadow of a past evil, but one that is at present hovering about the lobbies of Congress. Ninety per cent. of the casualties on American railways are the result of human negligence, recklessness or carelessness in the specific case.

III

EMPLOYES AND THEIR COMPENSATION

Number 1,695,000

Compensation \$1,230,800,000

In its report for 1910, the Commission placed the number of railway employes at the close of the year at 1,699,420, and their compensation for the year at \$1,143,725,306. To these figures should be added 33,015 employes reported on the pay rolls of the switching and terminal companies, whose compensation was \$21,719,549, making the total for all railway companies in 1910:

Number 1,732,435

Compensation \$1,165,444,855

The 378 companies reporting to this Bureau on June 30, 1911, had 1,647,931 persons in their employ, or 84,504 less than the total reported to the Commission for the year 1910, including those employed by switching and terminal companies. In the matter of compensation, however, the companies reporting to this Bureau in 1911 paid their reduced staff \$1,201,259,607 in salaries and wages. This amount, it will be perceived, is \$35,814,752 more compensation than was paid all the railway employes in the United States in 1910 or in any preceding year.

Nor is this all. In 1910 it is found that the returns to this Bureau covered 97.2% of the numbers and 97.6% of the compensation of all railway employes as reported to the Commission, including those employed by switching and terminal companies. Applying these percentages to the figures above given, it appears that the total number of railway employes in the United States on June 30, 1911, was approximately 1,695,000 and their compensation for the years then closed was \$1,230,800,000. From which it is apparent that with a reduction of 37,435 persons on their payrolls the railways in 1911 paid \$65,355,145 more for salaries and wages than in 1910.

Not only is this compensation to labor the highest total in the history of American railways, but it marks the high water record in the proportion (43.67%) of their gross earnings paid to labor.

The average compensation paid per man also shows an exceptional advance from \$2.29 to \$2.42 per day. Only part of this,

however, is due to the increased rate of wages, as the average is affected by the laying off of low rate employes. However effected, here is an increase of 5.6% in the rate per day in one year, accounting for an increase of over \$63,000,000 in annual payroll.

The aggregate number of days worked by the employes of the railways reporting to this Bureau in 1911 was 497,224,726, compared with 495,148,779 in 1910, 434,328,026 in 1909, 453,002,228 in 1908, and 472,834,343 in 1907. This indicates an average of 301 days employment per man during the year, which must be considered as only an approximation, as the number of employes is not an average for the year.

The first summary under this title gives the number, compensation and average pay for the several classes of employes of the roads reporting for the year 1911, together with the aggregates reported to the Interstate Commerce Commission for the preceding years:

SUMMARY OF RAILWAY EMPLOYEES, COMPENSATION AND RATES OF PAY PER DAY BY CLASSES IN 1911, AND AGGREGATES FROM 1889 TO 1911.

1911 (232,117 Miles Represented) Class	Number	Per 100 Miles of Line	Compensation	Average Pay Per Day	Per Cent of Gross Receipts
General Officers.....	3,590	1.5	\$17,149,205	\$15.30	0.6
Other Officers.....	9,708	4.2	21,063,206	6.38	0.8
General Office Clerks.....	76,150	32.8	61,524,102	2.49	2.2
Station Agents.....	36,737	15.8	27,982,195	2.20	1.0
Other Station Men.....	153,526	66.1	95,335,487	2.00	3.5
Enginemen.....	62,491	26.9	99,951,666	4.72	3.6
Firemen.....	65,490	28.2	59,111,680	2.94	2.2
Conductors.....	47,346	20.4	64,956,106	4.18	2.4
Other Trainmen.....	131,949	56.9	120,956,345	2.92	4.4
Machinists.....	54,812	23.6	51,001,629	3.17	1.9
Carpenters.....	65,413	28.2	50,141,432	2.71	1.8
Other Shopmen.....	226,381	97.5	154,745,875	2.25	5.6
Section Foremen.....	43,825	18.9	30,338,045	2.07	1.1
Other Trackmen.....	354,808	152.9	135,167,605	1.50	4.9
Switch Tenders, Crossing Tenders and Watchmen.....	40,202	17.3	22,937,413	1.73	0.8
Telegraph Operators and Despatchers.....	40,986	17.7	34,179,264	2.42	1.3
Employees acct. Floating Equpt.	10,378	4.5	7,823,985	2.29	0.3
All other Employees & Laborers.	224,139	96.6	146,794,567	2.11	5.3
Total (95% Milcage Represented)	1,647,931	710.0	1,201,259,607	2.42	43.7
1910 Official Figures.....	1,732,435	716	\$1,165,444,855	(b) \$2.29	41.82
1909.....	1,528,808	638	1,005,349,958	2.24	41.00
1908.....	1,458,244	632	1,051,632,225	2.25	43.38
1907.....	1,672,074	735	1,072,386,427	2.20	41.42
1906.....	1,521,355	684	(a) 930,801,653	2.09	40.02
1905.....	1,382,196	637	839,944,680	2.07	40.34
1904.....	1,296,121	611	817,598,810	No data	41.36
1903.....	1,312,537	639	775,321,415	No data	40.78
1902.....	1,189,315	594	676,028,592	No data	39.28
1901.....	1,071,169	548	610,713,701	No data	38.39
1900.....	1,017,653	529	577,264,841	No data	38.82
1899.....	928,924	495	522,967,896	No data	39.81
1898.....	874,558	474	495,055,618	No data	39.70
1897.....	823,476	449	465,601,581	No data	41.50
1896.....	826,620	454	468,824,531	No data	40.77
1895.....	785,034	441	445,508,261	No data	41.44
1894.....	779,608	444	No data	No data	.....
1893.....	873,602	515	No data	No data	.....
1892.....	821,415	506	No data	No data	.....
1891.....	784,285	486	No data	No data	.....
1890.....	749,301	479	No data	No data	.....
1889.....	704,743	459	No data	No data	.....

(a) Includes \$30,000,000 estimate pay-roll of Southern Pacific, whose records were destroyed in the San Francisco disaster.

(b) Bureau computations.

A BILLION AND A QUARTER PAYROLL.

Aside from the fact that the figures for 1911 indicate a railway payroll for the year of over a billion and a quarter, the highest

aggregate recorded, the remarkable increase in the average rate per day since 1905 is the most significant feature of this table. Here is shown an advance in six years from \$2.07 per day to \$2.42, or 17%.

This seventeen per cent. means that in 1911 the employes of the railways of the United States received over \$200,000,000 more compensation because of the advance in the average rate of their pay since 1905.

Moreover the advance since 1905 came on top of an even greater increase in the rate of wages during the eight years preceding, as is shown in another table.

Note has already been made of the fact that the proportion of gross earnings absorbed by the payroll (43.7%) was the largest in the history of American railways.

UNREMUNERATIVE EXPENDITURES.

As in all recent statements of the compensation of railway employes, that for 1911 continues to bear unmistakable testimony to the unremunerative drain of federal and state legislation and regulation on railway revenues. This fact is shown in the following comparison of compensation for certain classes of employes in 1907 and 1911:

COMPENSATION OF CLASSES ESPECIALLY AFFECTED BY THE DEMANDS OF LEGISLATURES AND COMMISSIONS IN 1911 AND 1907.

Class	1911	1907
	232,117 Miles Represented	227,455 Miles Represented
Other Officers.....	\$21,063,206	\$15,012,226
General Office Clerks.....	61,524,102	48,340,123
Station Agents.....	27,982,195	24,831,066
Telegraph Operators and Despatchers.....	34,179,264	29,058,251
Employes Account of Floating Equipment.....	7,823,985	6,035,415
Total.....	\$152,572,752	\$123,277,081
Increase.....	29,295,661	or 23.8%

Here is an increase of nearly 24% in four years where there was an increase of only 2% in mileage and only 6% in gross earnings, the fund out of which all railway labor has to be paid. In ten years the remuneration of these five classes of railway employes has increased over 104%, where gross earnings have increased only 70% and mileage less than 20%.

Moreover, the excessive increase in the compensation of these classes represents only a fraction of the unremunerative expenditures caused by regulative exactions.

AVERAGE DAILY COMPENSATION, 1911-1892.

Ever since 1892 the Commission has published tables giving the average daily compensation of railway employes, accompanying them with an explanation that owing to the variety in the conditions of employment it is not possible to arrive at a wholly satisfactory rule or formula for converting all railway compensation into a daily wage. The same impossibility, of course, applies to the returns made to this Bureau, which are made from the reports to the Commission. These, however, are the best data available, and as they are based on uniform practice for a score of years they afford a reliable basis for comparison.

The following statement gives the compilation of the Commission from 1892 to 1910, inclusive, while the figures for 1911 are compiled from the returns to this Bureau:

COMPARATIVE SUMMARY OF AVERAGE DAILY COMPENSATION OF RAILWAY EMPLOYEES, BY CLASSES, FOR THE YEARS ENDING JUNE 30, 1911 TO 1892.

	General Officers	Other Officers	General Office Clerks	Station Agents	Other Stationmen	Enginemen	Firemen	Conductors	Other Trainmen	Machinists	Carpenters	Other Shopmen	Section Foremen	Other Trackmen	Switchmen, Flagmen and Watchmen	Telegraph Operators and Despatchers	Employes Account Floating Equipment	All other Employes and Laborers
1911* Bureau	15.30	6.38	2.49	2.20	1.91	4.72	2.94	4.18	2.92	3.17	2.71	2.25	2.07	1.50	1.73	2.42	2.29	2.11
1910† Official	13.27	6.22	2.40	2.12	1.84	4.55	2.74	3.91	2.69	3.08	2.51	2.18	1.99	1.47	1.69	2.33	2.22	2.07
1909† "		6.40	2.31	2.08	1.82	4.44	2.67	3.81	2.59	2.98	2.43	2.13	1.96	1.38	1.73	2.30	2.31	1.98
1908† "	13.11	6.27	2.33	2.09	1.82	4.45	2.64	3.81	2.60	2.95	2.40	2.12	1.95	1.45	1.78	2.30	2.38	1.97
1907 "	11.93	5.99	2.30	2.05	1.78	4.30	2.54	3.69	2.54	2.87	2.40	2.06	1.90	1.46	1.87	2.26	2.27	1.92
1906 "	11.81	5.82	2.24	1.94	1.69	4.12	2.42	3.51	2.35	2.69	2.28	1.92	1.80	1.36	1.80	2.13	2.10	1.83
1905 "	11.74	6.02	2.24	1.93	1.71	4.12	2.38	3.50	2.31	2.65	2.25	1.92	1.79	1.32	1.79	2.19	2.17	1.83
1904 "	11.61	6.07	2.22	1.93	1.69	4.10	2.35	3.50	2.27	2.61	2.26	1.91	1.78	1.33	1.77	2.15	2.17	1.82
1903 "	11.27	5.76	2.21	1.87	1.64	4.01	2.28	3.38	2.17	2.50	2.19	1.86	1.78	1.31	1.76	2.08	2.11	1.77
1902 "	11.17	5.60	2.18	1.80	1.61	3.84	2.20	3.21	2.04	2.36	2.08	1.78	1.72	1.25	1.77	2.01	2.00	1.71
1901 "	10.97	5.56	2.19	1.77	1.59	3.78	2.16	3.17	2.00	2.32	2.06	1.75	1.71	1.23	1.74	1.98	1.97	1.69
1900 "	10.45	5.22	2.19	1.75	1.60	3.75	2.14	3.17	1.96	2.30	2.04	1.73	1.68	1.22	1.80	1.96	1.92	1.71
1899 "	10.03	5.18	2.20	1.74	1.60	3.72	2.10	3.13	1.94	2.29	2.03	1.72	1.68	1.18	1.77	1.93	1.89	1.68
1898 "	9.73	5.21	2.25	1.73	1.61	3.72	2.09	3.13	1.95	2.28	2.02	1.70	1.69	1.16	1.74	1.92	1.89	1.67
1897 "	9.54	5.12	2.18	1.73	1.62	3.65	2.05	3.07	1.90	2.23	2.01	1.71	1.70	1.16	1.72	1.90	1.86	1.64
1896 "	9.19	5.96	2.21	1.73	1.62	3.65	2.06	3.05	1.90	2.26	2.03	1.69	1.70	1.17	1.74	1.93	1.94	1.65
1895 "	9.01	5.85	2.19	1.74	1.62	3.65	2.05	3.04	1.90	2.22	2.03	1.70	1.70	1.17	1.75	1.98	1.91	1.65
1894 "	9.71	5.75	2.34	1.75	1.63	3.61	2.03	3.04	1.89	2.21	2.02	1.69	1.71	1.18	1.75	1.93	1.97	1.65
1893 "		7.84	2.23	1.83	1.65	3.66	2.04	3.08	1.91	2.33	2.11	1.75	1.75	1.22	1.80	1.97	1.96	1.70
1892 "		7.62	2.20	1.81	1.68	3.68	2.07	3.07	1.89	2.20	2.08	1.71	1.76	1.22	1.78	1.93	2.07	1.67

*Pay of general officers in 1911 out of proportion because Bureau returns do not cover hundreds of small roads.

Averages for 1910, 1909 and 1908 do not include returns for switching and terminal companies.

Mark the advance in daily compensation all along the line between 1897 and 1911. For the four great classes primarily associated in the public mind with the operation of railways, the percentage of increase in the *rate* of compensation has been, engine-men, 29%; firemen, 43%; conductors, 36%, and other trainmen 53%. The general advance running through all grades from the largest class of them all (trackmen), up has averaged about 30%.

This means, that, *of the payroll of 1911, a million dollars a day was due to the advance in the rate of wages since 1897.* Perhaps Mr. Brandeis had a restoration of the wage scale of 1897 in mind when he suggested that by the exercise of scientific economy the railways of the United States could save a million dollars a day. And so they could, but who would do the walking?

RATIO OF COMPENSATION TO REVENUES.

The next statement gives the ratio of the aggregate compensation of railway employes to the gross earnings and operating expenses of the railways for the past seventeen years:

SUMMARY SHOWING PROPORTION OF COMPENSATION OF EMPLOYES TO GROSS EARNINGS AND OPERATING EXPENSES, AND OF OPERATING RATIO FOR SEVENTEEN YEARS, 1911 TO 1895.

	Ratio Compensation of Labor to Gross Earnings	Ratio Compensation of Labor to Operating Expenses	Ratio of Operating Expenses to Gross Earnings
1911 Bureau.....	43.74	63.71	68.66
1910 Official.....	41.82%	62.75%	66.29%
1909.....	41.00%	62.06%	66.12%
1908.....	43.38%	62.33%	69.67%
1907.....	41.42%	61.41%	67.53%
1906.....	40.02%	60.79%	66.08%
1905.....	40.34%	60.40%	66.78%
1904.....	41.36%	61.07%	67.79%
1903.....	40.78%	61.65%	66.16%
1902.....	39.28%	60.58%	64.66%
1901.....	38.39%	59.27%	64.86%
1900.....	38.82%	60.04%	64.65%
1899.....	39.81%	61.04%	65.24%
1898.....	39.70%	60.52%	65.58%
1897.....	41.50%	61.87%	67.06%
1896.....	40.77%	60.39%	67.20%
1895.....	41.44%	61.38%	67.48%

Pages of text could not add to the demonstration of this table that labor more than ever occupies the paramount place in the service American railways render to the American public. Where the operating cost, exclusive of taxes, absorbs nearly 69% of their

gross earnings, labor demands as its share nearly two-thirds of that cost, and gets it. Before the stockholder and bondholder, before all other creditors, not excepting the tax collector, stands the railway laborer demanding an ever-increasing share of the revenues of the railways.

EUROPEAN RAILWAY LABOR.

As these statistics are being compiled, few reports of the conditions of employment on foreign railways later than those published last year have come to hand. So far as they have been received, the following statement has been brought down to date:

SUMMARY SHOWING NUMBER OF EMPLOYES, COMPENSATION AND AVERAGE YEARLY PAY OF THE PRINCIPAL EUROPEAN COUNTRIES.

	Miles of Railway	Employes Number	Compensation per Year	Average per Year	Ratio to Reve- nues
United Kingdom (1910).....	23,387	608,750	\$158,932,400	\$261	26.3
German Empire (1909).....	36,235	691,087	264,047,660	382	38.7
Austria (1908).....	13,500	274,987	71,355,596	260	40.6
Hungary (1909).....	12,532	126,775	35,029,003	276	40.5
Russian Empire (1908).....	41,888	844,100	165,366,939	196	38.8
France (1908).....	24,915	442,790	115,125,400	260	34.4
Italy (State 1907).....	8,762	127,372	36,462,071	287	46.4
Switzerland (1907).....	2,740	41,973	12,279,928	292	31.9
Total.....	163,989	3,157,834	858,598,997	.....	.....

PAY AND HOURS OF BRITISH RAILWAY EMPLOYES.

The Board of Trade of the United Kingdom in February, 1911, issued the report of its inquiries into the conditions of the work people of that country in 1907, dealing with the rates of wages and hours of duty of railway employes. Although many changes have taken place since 1907, the conditions are fairly representative of rates of wages and hours of labor today.

The inquiry called for a return of the total number of employes receiving wages in the last pay weeks of January, April, July and October, 1907, with the aggregate amount paid during the year, and for a return of the actual earnings and, for time workers in regular employment, the rate of wages of each employe in the last pay week of October, 1907.

The returns covered over 400,000 employes working in the following departments: The coaching and traffic, goods, locomotive, carriage and wagon (exclusive of construction works), permanent way and stores, stationery and printing. Station masters,

booking clerks and officials on the salary list were not included. The final returns were not received from the Railway Clearing House until the summer of 1911.

It was found that regular employment time workers formed 98 per cent. of the railway servants for whom returns were received, and as the number of women and girls employed was very small the male time worker in regular employment is regarded by the report "as the normal type of railway servant."

Nearly all the employes were "six-day workers," *i. e.*, their rate of pay was for a working week of six days, Sunday duty when taken being paid for as overtime or equivalent time off being given in lieu of payment.

The hours of duty for a full week were given, exclusive of meal times, as follows: For adult workmen 58 hours for the United Kingdom as a whole, and for lads and boys 58.9 hours. The hours were slightly longer in Scotland. Of the adult workman 50% worked 60 hours or over, 24% 54 hours and under 56, and 10% under 54 hours.

Of the total number in regular employment over two-thirds had annual holidays with pay, usually of from three to six days. The report continues:

"The number of male time workers paid wages in the last pay week of October, 1907, who were in regular employment in the departments included in the returns, was 401,437, of whom 365,901 were adults and 35,530 were lads and boys. Their average rates of wages for a full week and average weekly earnings were as follows:

	Average Rates of Wages	Average Actual Earnings
Adult workmen.....	\$5.92	\$6.48
Lads and boys.....	2.74	2.90

"In a number of cases a cash 'bonus' was paid in addition to the nominal rate of wages. On the average this bonus increased the rate of wages for men by 4 cents to \$5.96 and that of lads and boys by 2 cents to \$2.76; the bonus is included in the average earnings previously stated.

The average weekly rates of wages (with and without bonus) and earnings of 'six-day workers' in certain of the principal grades were as follows:

Occupation	Average Rates of Wages		Average Actual Earnings
	Without Bonus	With Bonus	
Engine Drivers.....	\$9.72	\$9.76	\$11.16
Goods Guards and Brakesmen.....	6.87	6.91	7.57
Passenger Guards.....	6.75	6.77	7.11
Signalmen.....	6.01	6.18	6.69
Firemen.....	5.79	5.81	6.67
Shunters.....	5.79	5.79	6.23
Porters (Goods).....	4.87	5.05	5.32
Laborers (Permanent Way).....	4.87	No bonus	5.28
Platelayers and Packers.....	4.77	4.77	5.15
Porters (Coaching and Traffic).....	4.55	4.55	4.82

“Other additions to the nominal rates of wages, not included in the rates of wages or earnings stated, took the form of allowances of uniform or partial clothing or of a house rent-free or at a reduced rental. The allowance of uniform or partial clothing was valued at an average of 14 cents per week per recipient or 8 cents per head of the whole number of men. The principal grades receiving the allowance of uniform were passenger and goods guards, signalmen, shunters, coaching and traffic porters and foremen. The housing allowance averaged 44 cents weekly per recipient, or 2 cents per head of all the men.

“A considerable number of railway servants were entitled to sick pay, pensions, etc., under contributory pension or provident schemes to which the companies also contributed. In a few cases sick pay or pensions were given by the companies.

“The average annual earnings of all work people (including piece workers and casual workers), as estimated from the total wages bill for the year, were nearly \$316.”

Commenting on the \$4.82 average actual weekly earnings of coaching and traffic porters, the *London Railway News* from which the above extracts of the official report are copied, very pertinently asks, “But what has to be added for ‘tips’?”

The table of wages and earnings given above is the clearest and most comprehensive statement of the compensation of British railway employes that has been made public. It demonstrates that the adult British railway employe averages only \$6.48 per week where the average American railway employe, including “lads and boys,” averages \$14.52.

Where the average British engine driver gets less than \$2.00 per day the average American engineman gets \$4.72; where the British locomotive fireman gets only \$1.12 a day his American brother gets nearly \$3.00; where the highest paid "guards" get \$1.23 a day the American conductor receives over \$4.00; where the British "shunter" gets only \$1.04 a day the average of the American class that includes switchmen get \$2.92 a day.

Further details in regard to the number, pay and condition of employment of railway employes in foreign countries will be found in the Bureau's *Statistics for 1910*, pp. 53-58.

THE COST OF LIVING.

The high cost of nearly everything entering into the maintenance of the American standard of living continues to be urged as justifying the agitation for higher wages to railway employes. While it is true that the high cost of living "grows by what it feeds on," in more senses than one, this does not satisfy the wage worker. He does not see that high wages and high living are an endless chain. The income that makes high living possible breeds the tastes and habits that convert luxuries into seeming necessities and demand an ever-increasing income.

As fully 40% of the average pay of railway employes goes to the purchase of food, he is naturally deeply concerned in the steady advance in its retail price. Unfortunately the Bureau of Labor has issued no comprehensive report on this subject since Bulletin No. 77 brought the data down to 1907. By the aid of Bulletin No. 93, issued in March, 1911, on wholesale prices, and Bradstreet's monthly commodity reports, it is possible to bring the data down to 1910 in the following tables:

RELATIVE RETAIL PRICE OF THE PRINCIPAL ARTICLES OF FOOD IN THE UNITED STATES, 1890 TO 1910.

(Average price for 1890-1899=100.0.)

Year	Apples, Evapo- rated	Beans, Dry	Beef, Fresh, Roasts	Beef, Fresh, Steaks	Beef, Salt	Bread, Wheat	Butter	Cheese	Chick- ens (year or more old), Dressed	Coffee
1890.....	109.0	103.3	99.5	98.8	97.5	100.3	99.2	98.8	101.3	105.4
1891.....	110.3	106.2	100.0	99.4	98.3	100.3	106.4	100.3	104.0	105.2
1892.....	99.3	102.4	99.6	99.3	99.5	100.3	106.8	101.5	103.8	103.8
1893.....	107.0	105.0	99.0	99.6	100.3	100.1	109.9	101.8	104.2	104.8
1894.....	105.8	102.8	98.3	98.2	98.9	99.9	101.7	101.6	98.6	103.3
1895.....	97.4	100.5	98.6	99.1	99.6	99.7	97.0	99.2	98.4	101.7
1896.....	88.6	92.7	99.1	99.5	99.8	99.9	92.7	97.9	97.1	99.6
1897.....	87.8	91.5	100.3	100.2	100.9	100.0	93.1	99.0	94.0	94.6
1898.....	95.4	95.9	101.7	102.0	102.1	99.8	95.1	97.5	96.8	91.1
1899.....	99.5	99.7	103.7	103.9	103.2	99.6	97.7	102.4	101.8	90.5
1900.....	95.2	110.0	106.5	106.4	103.7	99.7	101.4	103.9	100.8	91.1
1901.....	96.8	113.9	110.7	111.0	106.1	99.4	103.2	103.3	103.0	90.7
1902.....	104.4	116.8	118.6	118.5	116.0	99.4	111.5	107.3	113.2	89.6
1903.....	100.3	118.1	113.1	112.9	108.8	100.2	110.8	109.4	113.5	89.3
1904.....	99.2	116.8	112.8	113.4	108.3	103.9	109.0	107.4	120.7	91.8
1905.....	106.0	116.3	112.2	112.9	107.9	104.5	112.7	110.9	123.6	93.6
1906.....	115.6	115.2	115.7	116.5	110.8	102.3	118.2	115.5	129.1	94.7
1907.....	124.6	118.8	119.1	120.6	114.1	104.5	127.6	123.2	131.4	95.0
1908.....	126.4	138.9	126.2	131.5	116.4	124.5	123.5	121.3	128.6	94.7
1909.....	128.6	141.2	132.6	134.1	128.2	124.5	134.8	142.0	150.2	108.6
1910.....	126.8	139.2	134.6	136.0	140.2	126.2	137.1	159.0	162.0	112.4

Year	Corn Meal	Eggs	Fish, Fresh	Fish, Salt	Flour, Wheat	Lard	Milk Fresh, unskim- med	Molas- ses	Mutton	Pork, Fresh
1890.....	100.0	100.6	99.3	100.7	109.7	98.2	100.5	104.7	100.7	97.0
1891.....	109.7	106.9	99.6	101.7	112.5	99.8	100.5	101.7	100.6	98.7
1892.....	105.2	106.8	100.1	102.2	105.1	103.6	100.6	101.2	101.0	100.5
1893.....	103.1	108.1	100.1	103.4	96.1	117.9	100.4	100.6	99.9	107.0
1894.....	102.2	96.3	100.4	101.5	88.7	106.9	100.2	100.3	97.8	101.8
1895.....	100.8	99.3	99.8	98.9	89.0	100.1	100.0	99.0	98.7	99.7
1896.....	95.0	92.8	100.2	97.5	92.7	92.5	99.9	98.7	98.7	97.4
1897.....	93.7	91.4	99.8	95.2	104.3	89.8	99.7	97.7	99.6	97.6
1898.....	95.0	96.2	100.5	98.8	107.4	93.9	99.4	97.9	100.4	98.6
1899.....	95.1	101.1	100.2	100.2	94.6	97.1	98.9	98.2	102.6	101.7
1900.....	97.4	99.9	100.4	99.1	94.3	104.4	99.9	102.2	105.6	107.7
1901.....	107.1	105.7	101.4	100.9	94.4	118.1	101.1	101.3	109.0	117.9
1902.....	118.8	119.1	105.0	102.8	94.9	134.3	103.3	102.1	114.7	128.3
1903.....	120.7	125.3	107.3	108.4	101.2	126.7	105.8	103.8	112.6	127.0
1904.....	121.5	130.9	107.9	111.7	119.9	117.3	106.3	104.0	114.1	124.0
1905.....	122.2	131.6	109.9	113.8	119.9	116.6	107.0	104.4	117.8	126.6
1906.....	123.2	134.2	116.2	116.8	180.1	123.0	108.9	105.3	124.1	137.7
1907.....	131.6	137.7	120.6	121.6	117.7	134.2	116.8	107.7	130.1	142.5
1908.....	154.0	140.2	116.2	118.4	140.0	132.1	115.4	102.2	126.4	141.6
1909.....	160	142.2	120.4	122.6	154.4	153.8	141.6	106.4	134.8	163.2
1910.....	140.6	165.0	124.0	126.4	150.6	160.0	144.3	109.6	140.2	180.2

RELATIVE RETAIL PRICES OF THE PRINCIPAL ARTICLES OF FOOD IN THE UNITED STATES, 1890 TO 1910—Continued.

(Average price for 1890-1899=100.0.)

Year	Pork, Salt, Bacon	Pork, Salt, Dry or Pickled	Pork, Salt, Ham	Pota- toes, Irish	Prunes	Rice	Sugar	Tea	Veal	Vinegar
1890.....	95.8	95.3	98.7	109.3	116.8	101.3	118.6	100.0	98.8	102.9
1891.....	96.6	98.9	99.3	116.6	116.5	102.5	102.7	100.4	99.6	105.5
1892.....	99.1	100.5	101.9	95.7	113.5	101.3	96.2	100.2	100.0	102.7
1893.....	109.0	108.7	109.3	112.3	115.6	98.4	101.5	100.1	100.0	99.5
1894.....	103.6	103.4	101.9	102.6	100.9	99.0	93.8	98.7	98.7	99.8
1895.....	99.4	99.2	98.8	91.8	94.2	98.8	91.8	98.5	98.5	98.9
1896.....	96.7	95.5	97.6	77.0	86.8	96.7	96.6	98.8	99.5	97.2
1897.....	97.4	97.3	98.2	93.0	84.3	97.9	95.7	98.5	99.9	97.4
1898.....	100.2	99.1	95.1	105.4	86.3	101.7	101.3	100.7	101.2	97.9
1899.....	102.9	101.8	99.2	96.1	85.1	102.4	101.7	104.4	103.7	98.3
1900.....	109.7	107.7	105.3	93.5	83.0	102.4	104.9	105.5	104.9	98.5
1901.....	121.0	117.5	110.2	116.8	82.6	103.5	103.0	106.7	108.8	98.9
1902.....	135.6	132.5	119.4	117.0	83.4	103.5	96.0	107.2	115.2	99.5
1903.....	139.8	129.0	121.3	114.8	80.2	103.9	96.1	106.0	114.9	99.1
1904.....	137.9	125.8	118.4	121.3	79.6	101.6	101.9	105.8	115.5	98.9
1905.....	138.8	126.0	118.5	110.2	81.4	102.6	103.9	105.7	117.7	100.3
1906.....	150.4	136.9	127.2	114.4	85.1	105.7	98.2	105.5	123.2	102.6
1907.....	157.3	141.2	130.7	120.6	88.4	108.5	99.6	105.3	125.0	104.5
1908.....	142.4	137.4	112.0	138.4	89.0	105.1	100.0	108.6	124.2	112.4
1909.....	180.0	151.2	145.0	120.0	80.0	103.3	105.0	109.0	130.2	113.0
1910.....	190.0	170.5	162.0	100.0	90.0	100.0	106.0	107.0	130.2	112.0

While no authority is claimed for the prices in these tables for the years 1908, 1909 and 1910, they represent the tendencies in those years as found in official and unofficial wholesale prices of the several commodities. That the retail price does not invariably follow the trend of the wholesale price is shown by the fact that where prunes is the only item in the foregoing tables to show below the standard of 100 for retail prices, the case is quite different among the wholesale prices. For instance, Bulletin No. 93 quotes the relative price of coffee in 1910 as 72.5, tea 84.5, evaporated apples 98.7, rice 97.5, and potatoes 85.7. "The cost of living" has apparently caused the retailer to increase the margin of his profits to keep pace with his tastes and habits.

Bulletin No. 93 of the Bureau of Labor contains a comprehensive discussion of the cost of living in the United States compared with conditions in the United Kingdom, Germany, France and Belgium. Unfortunately it is not in a form to be summarized. From one table it appears that in all classes beef, butter, eggs and milk in the order named make the heaviest drafts on the family income.

Taking up the wholesale prices where Bulletin No. 93 leaves them, *Bradstreet's* price index numbers for all commodities bring them down to date as follows:

1911		1911	
April #.....	\$8.5223	October.....	\$8.8065
May.....	8.4586	November.....	8.8922
June.....	8.5294	December.....	8.9578
July.....	8.5935	1912	
August.....	8.6568	January.....	8.9493
September.....	8.8191	February.....	8.9578
		March.....	8.9019

#The total of the price per pound of ninety-six articles.

The average for 1911 was considerably below 1910, which fell slightly below an average of \$9.00, being higher than 1907.

IV CAPITALIZATION

No phase of railway statistics is subject to more misapprehension, misrepresentation and distortion than that coming under the comprehensive title of "Capitalization."

The only railway Capitalization of public concern is that which represents the actual money which has been invested to provide the means of transportation by steam railroads for the people and commerce of the United States.

In his report for 1907, Prof. Henry C. Adams, then official statistician for the Commission, discussing the assignment of \$58,298 per mile of line as correctly measuring the amount of railway securities in the hands of the public, used these words:

"This figure represents correctly the average capitalization per mile of the railways in the United States, *meaning by that phrase the amount of active capital to be supported by freight and passenger rates.*"

In the face of this admirable definition of what constitutes railway capital, Professor Adams' successor prefaces the statistics of "Capitalization of Railway Property," in his report for 1910, with this statement:

"By 'railway capital' as used in this set of statements is meant the aggregate of securities issued, including not only those actually issued and outstanding, but also those which have been reacquired and are held alive in the hands of some fiduciary of the issuing corporation, and those which have been merely nominally issued but not yet delivered to a *bona fide* purchaser for value. No economic conclusion or question of equity is involved in this use of the term."

Perhaps not. But there is a nation-wide and harmful popular delusion bred and nourished by this seemingly innocent use of the term.

Present day talk about the water in American railway capitalization is kept alive by the parade in official prints of aggregate figures of which less than 80% is active capital "to be supported by freight and passenger rates."

The crime of misrepresenting the capitalization of American railways is against the American people because the false cry of overcapitalization makes it difficult to obtain on reasonable terms the additional capital for improvements and extensions for which there is a crying necessity.

NET CAPITALIZATION IN 1911.

Following the formula adopted by Professor Adams to ascertain the only capitalization that "measures the claim of railway securities on railway revenues," the returns received by this Bureau from 232,117 miles of operated line (190,929 owned and 41,188 rented) yield the following result for the year ending June 30, 1911:

SUMMARY SHOWING NET CAPITALIZATION OF 378 COMPANIES OPERATING 232,117 MILES OF LINE FOR THE YEAR ENDING JUNE 30, 1911.

Item	Capitalization (190,929 Miles Owned) 1911	
Capital Stock.....	\$6,988,087,937	
Funded Debt.....	9,344,729,433	
Receivers' Certificates.....	12,955,503	\$16,345,772,873
Rental 41,188 miles, \$127, 267,336, capitalized at 5%...		2,545,347,520
Total		\$18,891,120,393
Deductions for Railway Stock Owned.....	\$3,065,378,211	
Deductions for Funded Debt Owned.....	1,687,838,570	\$4,753,216,781
Net Capitalization 1911 (232,117 miles).....		\$14,137,903,612
Net Capitalization per Mile Operated.....		61,340

It is a question whether the above capitalization should not be further reduced by deducting therefrom \$809,465,180 for other stocks (\$615,048,044) and funded debt (\$194,417,136) not railway issues owned by the railway companies and which paid \$33,-272,072 into their treasuries, thereby relieving freight and passenger rates of fixed charges to that extent. The writer does not doubt that it should be deducted.

NET CAPITALIZATION OF ALL RAILWAYS 1911.

Accepting \$14,137,903,612 as the net capitalization of the 232,117 miles of line reporting to this Bureau, it only remains to place a reasonable estimate on the 11,112 miles not covered by these reports to arrive at a close approximation of the net capitalization of all

the railways of the United States. Estimating this at \$30,000 a mile (\$25,000 would be liberal), the account would stand as follows:

Net Capitalization, 232,117 Miles Represented.....	\$14,137,903,612
11,112 Miles at \$30,000.....	333,360,000
Total for 243,229 Miles Represented.....	\$14,471,263,612
Less Assigned to "Other Properties" in 1910.....	36,953,808
Net Capitalization all Railways in U. S. in 1911.....	\$14,434,309,804
Net Capitalization per Mile of Line.....	59,345

This computation includes mileage operated under trackage rights, for the sound reason that the rental for such rights is included in the capitalization item of other rentals at 5% given above.

In 1910, the Commission reported \$14,338,575,940 as the amount then outstanding in the hands of the public against 228,841 miles owned. Allowing for differences in methods of arriving at results, these figures strongly corroborate those computed from the returns to this Bureau.

GROSS AND NET CAPITAL 1911 TO 1889.

Previous to 1907 the Commission included in its report a valuable table giving the amount of stocks and bonds outstanding, together with the amount of both owned by railway corporations, from which it was possible to calculate approximately their net capitalization for any given year. Under the new accounting, this statement has been omitted, although the railways are still required to furnish the data. In order to preserve the continuity of this important record, the next statement shows the gross railway capital, securities owned, net capital outstanding in the hands of the public, together with its amount per mile since 1889, when these figures were first compiled. Except those for 1911, the figures are from official reports.

SUMMARY OF GROSS RAILWAY CAPITAL, AMOUNT OF RAILWAY SECURITIES OWNED AND NET CAPITALIZATION OF THE RAILWAYS OF THE UNITED STATES, 1911 TO 1889.

Year	Gross Railway Capital	Railway Securities Owned	Net Railway Capital	Net Railway Capital per Mile
1911 Bureau.....	\$19,187,526,885	\$4,753,216,781	\$14,434,309,804	\$59,345
1910 Official #†.....	18,417,132,238	4,078,556,298	14,338,575,940	62,657
1909 # ".....	17,487,868,935	†3,776,001,202	13,711,867,733	59,259
1908 # ".....	16,767,544,827	3,933,953,317	12,833,591,510	57,201
1907 ".....	16,082,146,683	3,161,794,135	12,920,352,548	58,298
1906 ".....	14,570,421,478	2,898,480,829	11,671,940,649	54,421
1905 ".....	13,805,258,121	2,638,152,129	11,167,105,992	53,328
1904 ".....	13,213,124,679	2,501,330,601	10,711,794,078	52,099
1903 ".....	12,599,990,258	2,318,391,953	10,281,598,305	51,559
1902 ".....	12,134,182,964	2,208,518,793	9,925,664,171	50,961
1901 ".....	11,688,147,091	2,205,497,909	9,482,649,182	49,925
1900 ".....	11,491,034,960	1,943,050,349	9,547,984,611	51,092
1899 ".....	11,033,954,898	1,601,913,167	9,432,041,731	51,215
1898 ".....	10,818,554,031	1,521,386,255	9,297,167,776	51,856
1897 ".....	10,635,008,074	1,466,936,176	9,168,071,898	51,396
1896 ".....	10,566,865,771	1,501,346,914	9,065,518,857	51,141
1895 ".....	10,346,754,229	1,447,181,534	8,899,572,695	51,421
1894 ".....	10,190,658,678	1,544,058,670	8,646,600,008	50,358
1893 ".....	9,894,625,239	1,563,022,233	8,331,603,006	50,293
1892 ".....	9,686,146,813	1,391,457,053	8,294,689,760	52,348
1891 ".....	9,290,915,439	1,282,925,716	8,007,989,723	50,858
1890 ".....	8,984,234,616	1,406,907,001	7,577,327,615	49,473
1889 ".....	8,574,046,742	1,151,972,901	7,422,073,841	50,013

#Does not include returns for switching and terminal companies.

†In 1910 the per mile divisor was 228.841 miles owned.

‡If railway securities owned in 1908 is correct, the amount for 1909 is about \$300,000,000 below what it should be.

DISTRIBUTION OF RAILWAY CAPITAL.

Summaries in the official Statistics for 1910, 1900 and 1890 distribute railway capital among the territorial groups as follows:

SUMMARY OF RAILWAY CAPITAL ON JUNE 30, 1890, 1900 AND 1910 BY GROUPS.

Territory Covered	1890	1900	1910
Group I	\$ 377,417,302	\$ 472,329,210	\$ 799,627,536
Group II	2,032,242,616	2,337,874,067	3,543,053,383
Group III	1,309,390,715	1,490,997,662	2,414,370,374
Group IV	410,704,029	631,863,020	960,183,380
Group V	742,670,372	903,681,993	1,346,913,136
Group VI	1,818,588,865	2,024,541,064	3,102,203,094
Group VII	443,136,450	560,763,313	1,047,244,431
Group VIII.....	1,047,274,401	1,395,350,723	2,260,370,943
Group IX	372,982,285	511,034,132	808,905,131
Group X	882,876,385	1,162,599,776	2,134,260,830
Total.....	*\$9,437,343,420	\$11,491,034,960	\$18,417,132,238
Less Stocks and Bonds Owned...	1,406,907,001	1,943,050,349	†4,078,556,298
Net Railway Capital.....	\$8,030,436,319	\$9,547,984,611	\$14,338,575,940

*Includes \$453,108,804 "other forms of indebtedness" excluded in other years.

†Includes \$36,953,808 assigned to "other properties."

Owing to the complexity of ownership in which the capital issues of a railway company in one territory are owned by the companies in other groups, it is impossible to off-set stocks and bonds owned against the respective groups and so arrive at their net capitalization.

NEW RAILWAY CAPITAL IN 1911.

According the annual returns of the railways reporting to this Bureau for the year ending June 30, 1911, there was an increase of \$817,911,591 in railway capitalization outstanding, of which \$479,-052,431 was in funded debt and \$344,068,091 in stock. The amount in receivers' certificates was less by \$5,208,931. Stocks and bonds owned increased \$348,611,750. On the construction side, this was most nearly represented by an increase of 4,592 miles of line and 10,169 miles of track.

According to the *Commercial and Financial Chronicle*, the securities listed on the New York Exchange for the first time during the calendar year 1911 was \$1,224,449,240, divided as follows:

	Bonds	
Steam Railway.....	\$298,003,900	
Street Railway.....	34,160,000	
Miscellaneous.....	243,670,500	\$580,834,400
	Stocks	
Steam Railway.....	\$204,889,550	
Street Railway.....	141,226,600	
Miscellaneous.....	297,498,680	\$643,614,830
Total.....		\$1,224,449,230

Of the bonds listed for railway purposes no less than \$110,796,000 were to retire or replace old securities and \$11,500,000 were old issues just listed. Of the stock, \$69,502,000 were to retire or replace existing securities and \$29,000,000 were old issues just listed. Including the old issue listed in 1911, the new capital account of the railways for the year would therefore be as follows:

Steam Railway Bonds.....		\$187,207,000
Steam Railway Stocks.....		135,387,550
Total.....		\$322,594,550

The temporary note issues, which are seldom listed, reached the formidable sum of \$310,669,000, of which no less than \$187,175,000 were issued by the railways. Including these, the capital requirements of the railways met by the issue of bonds, stocks and notes during the year amounted to \$509,769,500, where there was an increase of \$427,333,441 in the net capital of the railways reporting to this Bureau. Large as these sums may appear, the largest of them is totally inadequate to meet the demands for improvements, additions, extensions and new equipment of a railway system which should be prepared to handle an increase in traffic of from 6% to 8% annually.

CAPITALIZATION OF FOREIGN RAILWAYS.

Nothing can demonstrate more clearly the comparatively low capitalization of American railways than the following statement of the capital cost, or cost of construction, of the railways of the principal foreign countries, compiled from the latest available data:

SUMMARY OF RAILWAY CAPITALIZATION OF THE PRINCIPAL FOREIGN RAILWAYS.

Year	Country	Miles of Line	Capital or Cost of Construction	Per Mile
Europe				
1910	United Kingdom.....	23,387	\$6,421,170,080	\$274,557
1909	Germany.....	36,235	4,048,810,560	111,737
1908	Russian Empire #.....	41,888	3,294,970,000	78,661
1908	France.....	25,040	3,550,874,000	141,508
1909	Austria.....	13,873	1,609,853,523	116,042
1909	Hungary.....	12,562	814,534,000	64,841
1908-09	Italy (State Roads).....	8,719	1,091,665,900	125,205
1908	Spain (13 Roads).....	6,840	583,632,000	85,327
1908	Sweden.....	8,242	272,150,020	33,000
1909-10	Norway.....	1,845	77,578,420	42,048
1908-09	Denmark (State Roads).....	1,192	63,625,230	53,125
1909	Belgium (State Roads).....	2,680	491,273,101	187,022
1909	Switzerland.....	3,034	330,037,141	108,780
Total Europe, including Siberia.....		185,537	\$22,650,173,975	\$122,079
Other Countries				
1910	Canada.....	24,731	\$1,601,050,750	\$64,740
1909	British India.....	31,015	1,422,000,000	45,266
1909	Argentine Republic.....	15,363	862,811,760	56,162
1909	Japan.....	5,020	394,100,607	78,820
1911	New South Wales⊕.....	3,760	248,228,770	66,020
1911	New Zealand⊕.....	2,761	153,448,830	55,574
1911	Queensland⊕.....	3,929	132,892,560	33,820
1911	Victoria⊕.....	3,505	206,804,550	59,000
1910	United States.....	228,841	\$14,338,575,940	62,657

#Includes Asiatic Russian railways.

⊕New South Wales railways are 4 ft. 8½ in. gauge; New Zealand and Queensland 3 ft. 6 in., and Victoria (all but 121 miles) 5 ft. 3 in.

The nationalization of the railways of Japan has raised the "cost of construction" from 411,559,035 yen for 4,783 miles, two-thirds private, in 1906 to 753,836,988 yen capital invested in 5,020 miles nine-tenths government in 1909. Any such financial prestidigitation in American railways would boost their capital account 80%.

The *Archiv fur Eisenbahnwesen* for June, 1911, estimates the total capital cost of the railways of the world in 1909 at \$53,280,-000,000 in round numbers; of which \$25,161,840,000 is apportioned to Europe and \$28,111,200,000 to the rest of the world. In this estimate the average capitalization for Europe is placed at \$123,100 per mile, and for the rest of the world at \$66,968 per mile.

V

COST OF CONSTRUCTION

One of the anomalies of accounting which has thrown railway statistics into chaos is found in the "General Balance Sheet" as it appears in the official report for 1910. If open confession is good for the soul of the statistician, it is found in the words of his report in this regard where he says:

"The general balance sheet next shown is constructed by aggregating the figures contained in the reports of the companies, both operating and nonoperating, that were considered sufficiently complete for inclusion. Switching and terminal companies are excluded. There has been no attempt to make adjustments for intercorporate relations. Securities and other liabilities of one company to another are included in the statement of assets as reported by the debtor company and in the statement of assets as reported by the creditor company, although it may happen in a particular case that the creditor company carries the claim on its books at only a nominal valuation. There is therefore no warrant for looking on this statement as representing the balance sheet of all the railways consolidated into a single system."

With this frank acknowledgment of its scientific worthlessness, the statistician presents the following table:

GENERAL BALANCE SHEET FOR THE YEAR ENDING JUNE 30, 1910 (226,114 MILES OF LINE REPRESENTED).

Item	Amount
Assets	
Net Investment in Road and Equipment.....	\$14,387,816,099
Book Value of System Securities Permanently Held.....	2,337,178,519
Other Permanent Investments.....	1,588,439,670
Working Assets and Accrued Income Not Due.....	2,139,006,497
Sinking and Redemption Fund.....	95,693,704
All other Deferred Debit Items.....	558,764,533
Total.....	\$21,106,899,013
Liabilities	
Stock.....	\$ 8,062,814,700
Mortgage, Bonded and Secured Debt.....	10,388,107,332
Working Liabilities and Accrued Liabilities Not Due.....	1,123,354,632
Deferred Credit Items.....	161,514,590
Appropriated Surplus.....	331,870,965
Profit and Loss.....	1,039,236,794
Total.....	\$21,106,899,013

There is one thing about this balance sheet that cannot be gained—*the totals balance.*

The item giving the net investment in road and equipment, if followed up in future reports and if arrived at through a consistent formula, will gradually gain in value for purposes of comparison. As given above it corroborates the statement of cost of road and equipment in the report of this Bureau for 1910, as \$14,-552,885,643 for 227,525 miles of operated line, and confirms the method by which the following statement of cost of road and equipment for 1911 was constructed:

COST OF ROAD AND EQUIPMENT FOR YEAR ENDING JUNE 30, 1911 (232,117 MILES OF LINE REPRESENTED).

Item	Amount
Investment in Road (190,929 miles owned).....	\$10,181,052,849
Investment in Equipment.....	2,479,041,063
General Expenditures.....	46,195,759
Cost of 41,188 Miles Leased Road Rental Capitalized.....	2,545,347,320
Total 1911.....	\$15,251,636,991
Total 1910.....	14,552,885,643
Increase.....	\$ 698,751,348

If it were not for the fact that the returns for 1911 on the first three items in this statement were far fuller than those covering the same items in 1910, the increase of \$698,751,348 shown for the year would be a fair approximation of the added investment in American railways during the year.

The item representing the cost of the 41,188 miles of road leased to the operating companies is arbitrarily arrived at by capitalizing the rental of \$127,267,386 paid by them at 5%. It offsets the amount added to capitalization on account of the same leased property.

If to the total of \$15,251,636,991, given in the above statement as the sum invested in the road and equipment of 232,117 miles of operated line, there be added the estimated capitalization of \$333,-360,000 for the 11,112 miles of line not reporting to this Bureau, we have an aggregate investment of \$15,584,996,991 for all American railways to June 20, 1911.

This, however, does not come within many billions of representing either their cost or their present value, for two obvious reasons, namely:

(1) It does not take into account the countless millions expended in the inception and construction of lines, whose records,

if ever complete, have been lost, or which have gone through the receiverships and reorganizations which first and last have overtaken over 130,000 miles of American railways with a capitalization of nearly seven and a half billions.

(2) It does not appraise the appreciation of railway property, especially at terminals, during the past three-quarters of the century. There is no "unearned increment" about this appreciation, for it is the creation of the railways.

THE APPRAISAL OF THE NEW YORK, NEW HAVEN & HARTFORD R. R.

The report of the Board of Railroad Commissioners, the Tax Commissioner and the Bank Commissioner of Massachusetts, sitting as a Commission, relative to the assets and liabilities of the New York, New Haven and Hartford Railroad Company, dated February 15, 1911, is one of the most important expositions regarding the value of railway property of recent times. The purpose of the inquiry was to ascertain whether the aggregate corporate assets of the company were sufficient to secure its outstanding capital stock and indebtedness. At the time of the inquiry, June 30, 1909, these were:

Capital Stock Outstanding.....	\$100,000,000
Bonds and Debentures.....	234,859,875
Loans and Notes Payable.....	5,250,000
Total.....	\$340,190,875

After a careful survey of the field the Commission selected Prof. George F. Swain of Boston as engineer in charge to make the physical valuation; Messrs. Stone & Webster of Boston were chosen for the investment and accounting divisions of the investigation, reporting to Professor Swain, who for many years has been consulting engineer of the Railroad Commission of Massachusetts and is now professor of civil engineering at Harvard University. The Commission had the benefit of the appraisal made by Mr. John F. Stevens, vice president of the company, covering all the physical property of the railroad proper, carefully reviewed by Price, Waterhouse and Company, chartered accountants of New York. The land valuations were placed in charge of Mr. J. Frank Aldrich of New York. In every way no effort was spared to secure a full,

accurate and authoritative valuation of the railway and its property.

The report, with its appendices, makes a volume of 581 pages, and contains a concise history of the railway from its original charter down to 1909. The final estimate of the cost of the road was set forth in the following table:

EXHIBIT 5.

Final Revision.

COST OF ROAD OF THE NEW YORK, NEW HAVEN & HARTFORD RAILROAD COMPANY.

Item	Stevens' Appraisal Arranged by Price, Waterhouse	Price, Waterhouse Adjustment of Stevens' Appraisal June 30, 1908	Present Valuation		
			New	Per Cent	Depreciated
1. Road					
1. Engineering.....	\$ 4,470,894	\$ 4,793,316.71	\$ 5,574,038	100	\$ 5,574,038
Contingencies.....			5,574,039		5,574,039
2. Right of Way and Station Grounds.....	55,935,451	54,679,616.96	62,789,016	100	62,789,016
3. Real Estate.....	3,289,573	4,027,354.00	5,240,052	100	5,240,052
4. Grading.....	28,224,823	31,162,979.92	30,263,853	100	30,263,853
5. Tunnels.....	436,090	1,517,208.63	1,943,149	100	1,943,149
6. Bridges, Trestles and Culverts	20,496,112	22,026,977.75	20,917,682	85	17,780,030
7. Ties.....	2,404,764	2,498,344.96	4,646,658	60	2,787,995
8. Rails.....	6,918,565	7,156,229.32	8,777,985	80	7,022,388
9. Frogs and Switches.....	440,907	480,938.50	1,015,004	65	659,753
10. Track Fastenings and Other Material.....	842,474	910,966.26	1,142,053	70	799,437
11. Ballast.....	4,946,114	5,039,911.18	3,970,389	100	3,970,388
12. Track Laying and Surfacing..	1,317,977	1,529,727.28	1,729,723	100	1,729,728
13. Roadway Tools.....	93,091	93,254.13	116,568	80	93,254
14. Fencing Right of Way.....	694,437	715,678.50	780,335	70	546,233
15. Crossings and Signs.....	4,856,374	5,618,393.42	4,989,436	70	3,492,605
16. Interlocking and Other Signal Apparatus.....	967,563	1,255,199.98	1,517,158	90	1,365,442
17. Telegraph and Telephone Lines.....	61,260	54,228.18	54,228		54,228
18. Station Buildings and Fixtures	5,368,197	5,520,099.04	7,934,309	80	6,347,447
19. General Office Buildings.....	569,928	576,706.78	669,345	88	589,024
20. Shops, Enginehouses and Turntables.....	1,879,713	1,993,019.61	2,725,112	75	2,043,834
21. Shop Machinery and Tools...	944,911	989,004.25	1,200,000	32	989,004
22. Water Stations.....	330,939	345,218.13	500,180	70	350,126
23. Fuel Stations.....	431,495	431,591.27	621,040	70	434,723
24. Grain Elevators.....	212,566	212,566.00	307,501	67	206,025
26. Dock and Wharf Property...	5,128,766	4,676,171.15	7,573,70	70	5,301,593
27. Electric Lights.....		7,468.33	26,280	90	23,652
28. Electric Power Plants.....	537,731	1,557,364.45	185,200	90	166,680
29. Electric Power Transmission	728,376	2,198,986.66	0,030,490	90	5,427,441
30. Gas-Producing Plants.....	11,267	11,267.00	23,460	80	18,768
31. Miscellaneous Structures.....	561,552	509,652.64	3,583,506	75	2,687,629
35. Earnings and Operating Expenses during Construction.		250,780.50			
36. Marine Equipment.....			3,702,100	65	2,474,300

COST OF ROAD OF THE NEW YORK, NEW HAVEN & HARTFORD RAILROAD COMPANY—Continued.

Item	Stevens' Appraisal, Arranged by Price Waterhouse	Price, Waterhouse Adjustment of Stevens' Appraisal June 30, 1908	Present Valuation		
			New	Per Cent	Depre- ciated
37. Electrification of New Haven Lines Operated by the Conn. Co., not elsewhere Appraised.....	.....	.....	474,804	90	427,324
38. Small Trolley Lines Owned by N. Y., N. H. & H. R. R. Co.....	.....	.....	147,600	.....	118,080
.....	.....	.....	137,760	.....	110,208
.....	.....	.....	79,802	80	63,842
Solidification.....	.....	.....	805,000	.....	805,000
Total Road.....	\$153,101,960	\$162,840,059.54	\$197,858,563	.....	\$180,270,333
2. General Expenditures					
43. Legal Expenses.....	\$ 1,387,924	\$ 894,513.98	\$ 2,475,389	.....	\$ 2,475,389
47. Interest and Commissions...	63,847,995	18,430,381.48	23,554,678	.....	23,554,678
48. Other Expenditures.....	1,387,924	920,796.04	3,155,680	.....	3,155,680
Total General Expenditures..	\$66,623,843	\$20,245,691.50	\$29,185,747	.....	\$29,185,747
Other Accounts					
Structures not Used in Operation of Road.....	\$ 1,778,213	\$ 1,773,473.00	.....	.....	.....
Land not Used in Operation of Road.....	7,244,776	7,244,776.00	.....	.....	.....
Property in Course of Replacement.....	.....	177,740.91	.....	.....	.....
Equipment.....	33,684,649	.....	77,557,514	70	54,145,056
Supplies on Hand.....	4,063,499	.....	.....	.....	.....
Improvements to October 1, 1907	9,859,993	.....	.....	.....	.....
40 Percent Interest in Boston Term. Co.....	6,667,925	.....	.....	.....	.....
Rechargeable Account.....	.....	125,173.73*	.....	.....	.....
Total Other Accounts.....	\$63,299,055	\$ 9,070,816.18	\$77,557,514	.....	\$ 54,145,056
Grand Total.....	\$283,024,858	\$192,156,567.22 ^Φ	\$304,601,824	.....	\$263,601,136
Value of Running Rights between Woodlawn and Grand Central Terminal, Based on Tax Paid..	.....	.....	6,000,000	.....	6,000,000

*Deduct.

^ΦThis does not include equipment nor any additions to property since June 30, 1908.

The appraised value of the securities of proprietary, affiliated and controlled companies owned was \$133,561,906; of other investments \$18,768,650; of working assets \$58,101,638, making with several small items a grand total of \$495,759,638.

Against this the liabilities validated, including capital stock, funded debt, notes and bills payable, etc., aggregated only \$394,147,563, leaving, in the language of the report:

Adjustment surplus\$101,612,074

Thus the official appraisers of Massachuetts join with those of Washington, South Dakota, Minnesota and Wisconsin in testifying to the high value and conservative capitalization of American railways.

For the latest information in regard to the physical valuation of railways by states the reader is referred to the Bureau's *Statistics* for 1910.

VI

OWNERSHIP OF AMERICAN RAILWAYS

According to the reports to this Bureau of 378 companies, representing 190,929 miles of line owned and 232,117 miles operated, their records at the date of the last election of directors prior to June 30, 1911, showed 363,807 shareholders. This is nearly two shareholders per mile owned. Estimating the ownership of the remaining 55,000 miles of line conservatively at one and a half shareholders per mile owned would bring the total shareholders in all American railways up to 446,307.

As the returns are not complete for this item, it is safe to estimate the number of owners of capital stock of American railways at 450,000. In making this estimate it is considered that the duplication of holders in several companies is offset by the instances where stock stands in a single name for many owners.

That this is a reasonable estimate is supported by the remarkable increase in the distribution of shares in the following 14 companies since 1904 when the Commission published a statement showing 327,785 shareholders in 1,182 roads:

	Shareholders	
	1904	1911
Pennsylvania R. R.....	44,175	69,352
Atchison, Topeka & Santa Fe.....	17,823	29,246
New York Central & Hudson River.....	11,781	21,202
New York, New Haven & Hartford.....	10,842	20,262
Union Pacific.....	14,256	19,420
Great Northern.....	383	16,973
Southern Pacific.....	2,424	12,813
Northern Pacific.....	368	12,715
Chicago, Milwaukee & St. Paul.....	5,832	10,962
Baltimore & Ohio.....	7,132	10,743
Illinois Central.....	9,123	9,831
Erie.....	4,309	9,047
Chicago & North-Western.....	4,109	8,167
Boston & Maine.....	7,402	7,295
Total.....	138,959	258,028
Increase per cent.....		85.9

If the ownership of the other roads included in the Commission's total in 1904 increased in the same relative proportion as

these 14, the number of owners on June 30, 1911, would have been 608,819. There is reason to doubt any such increase, although, owing to voting trusts, holding companies, etc., not reporting to the Commission, it is by no means improbable. The Southern Railway affords an instance where a voting trust extinguishes 9,572 "railway stockholders" of 1904 from the public records but not from the fact of ownership.

The ownership of railway funded debt is probably double that of capital stock and from the fact that this class of securities is so widely held by savings, educational and benevolent institutions, insurance companies, banks and trustees of all manner of funds it is clear that the fortunes of millions upon millions of depositors and beneficiaries of these institutions are involved in the prosperity as well as the sane regulation of the railways.

The February (1912) report of the Pennsylvania Railroad gives the latest number of its shareholders at over 73,300 and that where in August (1911) 15.65% of the capital stock was held abroad it had decreased to 14.10%. In distribution among the states the largest share naturally falls to Pennsylvania, with New England second and New York third.

Nearly one-half (47.28%) of stockholders in the Pennsylvania Railroad Company are women.

OWNERSHIP OF BRITISH ROADS.

Wide as is the ownership of American railways, it does not appear to be as general as that of British roads, judging from the following table compiled by the *London Railway News*, from a return to the Board of Trade in 1902, the last of its kind issued:

OWNERS OF BRITISH RAILWAY SECURITIES, 1902.

	Total Holders	Debenture Holders	Preferred and Guaranteed Holders	Ordinary Holders
England.....	643,889	126,236	250,370	313,458
Scotland.....	104,235	20,360	54,604	48,363
Ireland.....	50,143	9,888	17,979	22,450
Total.....	798,267	156,484	322,953	384,271

Later information as to seventeen companies having about 10,000 shareholders and upwards each, shows a total of 652,459, as follows :

Midland.....	90,000	London & Southwestern.....	33,000
Great Western.....	65,000	Lancashire & Yorkshire.....	37,500
London & North-western.....	100,000	London, Brighton & S. C.....	16,000
Great Northern.....	37,700	London, Chatham & Dover.....	15,000
North Eastern.....	40,000	Great Southern & Western.....	12,012
Caledonian.....	48,400	South-Eastern.....	15,000
North British.....	35,400	Taff Vale.....	9,774
Great Central.....	39,935	Glasgow & S. W.....	14,863
Great Eastern.....	42,875		

These figures are taken, with two exceptions, from the semi-official statements in the British "Railway Year Book" for 1910, in which, it should be noted, wherever the amount is given in round numbers it is preceded by the words, "upwards of." For instance, the statement in regard to the London & North-Western reads :

"Number of shareholders—Debenture, Preferred and Ordinary, upwards of 100,000."

Comparison cannot be made with American figures because, as seen above, the British data covers all capital obligations, while American figures relate wholly to capital stock, whereas two-thirds of the invested capital is in funded debt.

VII

PUBLIC SERVICE OF THE RAILWAYS

32,837,769,000 passengers carried one mile at.....1.966 cents per mile.
250,440,118,000 tons of freight carried one mile at.....7.54 mills per mile.

In the preceding pages has been shown what provision the railways of the United States have made to carry the passenger and freight traffic of the republic. In round figures, at a cost of between \$16,000,000,000 and \$20,000,000,000 they have provided and operated 245,000 miles of line and 110,000 miles more of auxiliary track and sidings; 60,000 locomotives, 50,000 passenger cars and 2,200,000 freight cars; and stations and terminals in 50,000 places. In the maintenance and operation of this vast plant they have employed nearly 1,700,000 persons to whom they paid over \$1,225,000,000 in compensation in 1911.

The important question for the American people is not what pecuniary profit did the railways clear on this amazing investment, but did it enable the railways to render adequate and efficient service at reasonable rates to a nation of over 93,000,000 occupying a territory of over 3,000,000 square miles? Succeeding statements cover the salient features of this service, beginning with a comparative summary of passenger and freight service for 1907, 1909, 1910 and 1911.

COMPARATIVE SUMMARY OF PASSENGER AND FREIGHT SERVICE FOR THE YEARS
ENDING JUNE 30, 1911, 1910, 1909 AND 1907.

Item (m=000 omitted)	1911 Bureau Figures	1910 # Official Figures	1909 # Official Figures	1907 Official Figures
Miles Represented.....	232,117	240,830	235,402	227,454
Passenger Service				
Passengers carried (m).....	957,921	971,683	891,472	873,905
Passengers carried 1 mile (m).....	32,837,769	32,338,496	29,109,322	27,718,554
Passengers carried 1 mile per mile of line.....	141,481	138,169	127,299	123,259
Mileage of revenue passenger trains (m).....	558,765	549,015	506,011	509,328
Average number of passengers in train.....	58	56	54	51
Average journey per passenger.....	34.21	33.50	32.85	31.72
Passenger car miles (m).....	3,032,358	2,998,170	2,746,510	.....
Average passenger per car mile.....	10.83	10.83	10.60	.....

#Exclude returns from switching and terminal companies, included in 1911 and 1907.

COMPARATIVE SUMMARY OF PASSENGER AND FREIGHT SERVICE FOR THE YEARS
ENDING JUNE 30, 1911, TO 1907—Continued.

Item (m=000 omitted)	1911 Bureau Figures	1910 # Official Figures	1909 # Official Figures	1907 Official Figures
Freight Service				
Tons Carried				
Number of tons reported (m).....	1,694,106	1,849,900	1,556,559	1,796,336
Tons carried 1 mile (m).....	250,440,118	255,016,910	218,802,956	236,601,390
Tons carried 1 mile per mile of line.....	1,078,587	1,071,086	953,986	1,052,119
Mileage of revenue freight trains (m).....	617,676	635,450	568,854	629,995
Average number of tons in trains.....	406	380	362	357
Typical haul of average railway, miles.....	147	133	141	131
Mileage of revenue mixed trains.....	32,899	35,807	36,236	32,111
Total revenue train mileage (m).....	1,209,330	1,221,852	1,112,452	1,171,922
Total mileage of freight cars (m).....	18,862,106	18,981,573	17,169,413	17,122,259
Average freight car miles per day,.....	24.6	24.3	22.7	23.5

#Excludes returns from switching and terminal companies included in 1911 and 1907.

Many interesting and instructive reflections on the course of railway traffic during the past five years may be made on the facts presented in this table. The figures for 1909 record the continuance of the depression after the panic of 1907. The returns on passenger service demonstrate that passenger traffic is not affected nearly so much by general business suspense as the freight traffic. Indeed if it had not been for the cut in their revenues caused by 2-cent fare legislation, the railways would not have known from their passenger traffic that we were passing through a period of business stagnation.

It was in their freight service that the railways felt the full force of the shock to business confidence that followed the panic of 1907. Here it will be seen the drop in tonnage from 1,796,336,000 in 1907 to 1,556,559,000 in 1909 was followed by a recovery in 1910, only to again fall below the 1907 total in 1911. Although the Bureau's figures for 1911 cover more mileage than the official returns for 1907, it will be seen that there was less tonnage carried, while the increase in ton mileage was wholly due to the greater length of the haul.

THE STEADY GROWTH OF PASSENGER TRAFFIC.

In order that the reader may comprehend at a glance how the passenger service of the railways has tended to increase more rapidly than the revenue from it, the two are brought together in the following statement covering the last decade:

SUMMARY OF PASSENGER MILEAGE, REVENUE AND RECEIPTS PER PASSENGER MILE, 1901 TO 1911.

Year	Passengers Carried One Mile	Increase over Preceding Year (Per Cent)	Passenger Revenue	Increase over Preceding Year (Per Cent)	Receipts per Passenger Mile (Cents)
1901 Official.....	17,353,588,444	.....	351,356,265	.....	2.015
1902 ".....	19,689,937,620	13.4	392,963,248	11.8	1.936
1903 ".....	20,915,763,881	6.2	421,704,592	7.3	2.006
1904 ".....	21,923,213,536	4.8	444,326,991	5.3	2.006
1905 ".....	23,800,149,436	8.6	472,694,732	6.4	1.962
1906 ".....	25,167,240,831	5.7	510,032,583	7.9	2.003
1907 ".....	27,718,554,030	10.1	564,606,343	10.7	2.014
1908 ".....	29,082,836,944	4.9	566,245,657	0.3	1.937
1909 # ".....	29,109,322,589	0.0	563,609,342	D0.5	1.928
1910 # ".....	32,338,496,329	11.1	628,992,473	11.6	1.938
1911 Bureau Figures.	32,837,769,000	1.5	645,675,465	2.6	1.966
Ten years' increase percent.....		89.1		83.7	D2.5

Does not include switching and terminal companies.

D—Decrease.

Here, it will be perceived, over the whole period the revenue has increased only 83.7% to 89.1% in passenger service rendered. The drop in revenue in 1908 and 1909 represents the effect of the 2-cent fare legislation, whereas the recovery in 1910 and 1911 shows the effect of the restraint put on this legislation by the courts or the neutralization of its effect by the withdrawal of special rates to excursionists, etc.

Compounding every year, the passenger service required of the railways increases at the rate of 6.6% a year, and any regulation or legislation that tends to hobble them in making adequate provision for such an increase is "undue restraint" of trade, which, unhappily, does not come under the inhibition of the Sherman Act.

PASSENGER TRAFFIC 1911-1888.

The next statement presents a comprehensive review of the passenger traffic service and revenue of the railways of the United States, from the time the Commission began compiling the data down to 1911:

Year	Passengers Carried (Millions)	Passengers Carried One Mile (Millions)	Mileage Passenger Trains (Millions)	Average Passengers in Train	Average Journey Miles	Passenger Revenue (Millions)	Average Receipts per Passenger Mile (Cents)
1911.....	959	32,837	553	58	34	\$645	1.966
1910*.....	971	32,338	549	56	34	628	1.938
1909*.....	891	29,109	506	54	33	563	1.928
1908*.....	890	29,082	505	59	33	566	1.937
1907.....	873	27,718	509	51	32	564	2.014
1906.....	797	25,167	479	49	31	510	2.003
1905.....	738	23,800	459	48	32	472	1.962
1904.....	715	21,923	440	46	31	444	2.006
1903.....	694	20,915	425	46	30	421	2.006
1902.....	649	19,689	405	45	30	392	1.986
1901.....	607	17,353	385	42	29	351	2.013
1900.....	576	16,038	363	41	28	323	2.003
1899.....	523	14,591	347	41	28	291	1.978
1898.....	501	13,379	334	39	27	267	1.973
1897.....	489	12,256	335	37	25	251	2.022
1896.....	511	13,049	332	39	26	266	2.019
1895.....	507	12,188	317	38	24	252	2.040
1894.....	540	14,289	326	44	26	285	1.986
1893.....	593	14,229	335	42	24	301	2.108
1892.....	560	13,362	317	42	24	286	2.126
1891.....	531	12,844	308	42	24	281	2.142
1890.....	492	11,847	285	41	24	260	2.167
1889.....	472	11,553	277	42	25	254	2.199
1888.....	412	10,101	252	40	24	237	2.349
Increase 1888 to 1910....	142%	225%	121%	45%	42%	172%	.....
Decrease....	.....	.....	.....	.....	.....	.....	19.4%

*Exclusive of switching and terminal companies in 1908 and 1909.

Every line of this table testifies to the ever-increasing efficiency of American railways in the handling of passengers. The service increased 225% in 23 years, where the revenue increased only 172% because there was a reduction of 19.4% in the receipts per passenger mile. This reduction in the face of the enormous expenditures to increase the speed, comfort, convenience and safety of railway travel is a tribute to the resources of American railway management without a parallel in the railway world.

The diversity of the conditions under which through territorial and population differences railway service is performed in the United States is shown in the next statement:

SUMMARY OF PASSENGER SERVICE ASSIGNMENTS BY GROUPS FOR THE YEAR
ENDING JUNE 30, 1910.

Territory	Passengers Carried (Millions)	Passengers Carried One Mile (Millions)	Mileage Passenger Trains (Millions)	Average Passengers In Train	Average Journey Miles	Passenger Revenue (Millions)	Average Receipts per Passenger Mile (Cents)
Group I....	153	2,996	38	76	20	51	1.718
Group II...	332	7,362	115	63	23	125	1.695
Group III...	101	4,042	78	51	41	75	1.846
Group IV...	30	1,084	23	42	36	23	2.176
Group V....	53	2,139	48	41	40	49	2.256
Group VI...	144	5,890	103	53	41	111	1.887
Group VII..	16	1,558	24	60	94	32	2.073
Group VIII.	54	2,925	54	49	54	61	2.079
Group IX...	23	1,232	23	48	53	29	2.321
Group X...	65	3,110	43	67	48	72	2.292
United States....	891	32,338	549	56	34	628	1.938

Mark the contrast in density of traffic conditions illustrated in territorial groups having 76 and 41 as the average of passengers to a train, and between an average passenger journey of 20 miles in one group and 94 miles in another.

Wherever in the above table the average passengers to a train falls below 50, it would require evidence of special circumstances to prove that the passenger traffic is not carried at a loss to be made good by the freight.

In the early years of the Commission, Professor Adams, then its statistician, adopted a formula by which he sought to ascertain the cost of passenger service, with the following results:

	1888	1889	1890	1891	1892	1893
Average cost of carrying a passenger one mile (cents).....	2.042	1.993	1.917	1.910	1.939	1.955

No more satisfactory formula has been found, and it will be perceived that the average receipts today are approximately the same as the average cost of the passenger service two decades ago. In the meantime the service is incomparably better and is produced at a higher cost for labor, equipment and terminal facilities and conveniences.

RECEIPTS FROM MAIL AND EXPRESS.

Increased popular attention during 1911 has been directed to the mail and express service which on American railways are incidentals to the passenger service. In the matter of revenue for carrying the mails, the figures at a glance refute the claim of the Post Office Department that the rail charges are unreasonable, much

less extortionate. Viewed dispassionately, they prove that the Post Office authorities and Congress, having the power, have used it most arbitrarily to cut the last vestige of profit out of railway mail contracts.

Ten years ago, after an exhaustive investigation lasting over two years, the Joint Commission of Congress, on January 1, 1901, reported "*that the prices now paid to the railroad companies for the transportation of the mails are not excessive, and we recommend that no reduction thereof be made at this time.*"

It is within the knowledge of everyone who has given the subject the most casual attention that the post office business of the United States has grown over 100% during the past decade, and no part of this business has increased more rapidly than the service exacted of the railways.

The revenue of the post office between 1901 and 1911 increased 112%; the number of railway mail clerks increased 84%; their pay increased 108%.

In the meantime the receipts of the railways from mail, in face of the fact that it was carried at greater speed, with more expensive equipment, increased less than 31%.

In order that the reader may appreciate how the government has abused its power in reducing railway mail pay, the next statement presents a summary of the earnings of the railways from this source for the last decade down to June 30, 1911, in comparison with the earnings from express, which show a normal growth:

SUMMARY OF RECEIPTS FROM MAIL AND EXPRESS, 1901 TO 1911.

Year	Mail		Express	
	Revenues	Percentage of Earnings	Revenues	Percentage of Earnings
1901.....	38,453,602	2.42	31,121,613	1.96
1902.....	39,963,248	2.31	34,253,459	2.07
1903.....	41,709,396	2.19	38,331,964	1.98
1904.....	44,499,732	2.25	41,875,636	2.12
1905.....	45,426,125	2.18	45,149,155	2.17
1906.....	47,371,453	2.04	51,010,930	2.19
1907.....	50,378,964	1.94	57,332,931	2.21
1908.....	48,517,563	2.03	58,602,091	2.45
1909.....	49,380,783	2.04	59,647,022	2.47
1910*.....	48,913,888	1.78	67,190,922	2.44
1911 Bureau Figures.....	50,092,252	1.86	69,950,683	2.55
Increase Percent.....	30.3	.....	124.4	.....

*Excludes switching and terminal companies.

Mark the two significant facts, *i. e.*, that railway mail revenues during the decade have not increased one-quarter as rapidly as their express revenues, and their percentages of gross earnings have been practically reversed. Also observe that the mail revenues for 1911 were less than those for 1907, where other passenger service increased from 14% to 22%.

As the increase in express receipts is more nearly coincident with the increase in passenger mileage (94.3%), which is the truest measure of the increase in passenger service, including mail and express, it is evident that the revenue from mail has suffered from a blight from which other branches of railway service have been immune.

That blight has been the arbitrary rulings and exactions of the Post Office Department, which, while demanding more costly postal cars, conveniences and service, has reduced rates and regulated weighings so as to produce the above results.

Put in concrete form:

Had railway revenues from mail increased as rapidly during the last decade as their revenues from express, their earnings from this source alone last year would have been over \$86,000,00, or \$36,000,000 more than they were.

Had they increased as rapidly as the government postal revenues (112%), or as rapidly as passenger service, they would have been over \$31,000,000 more than they were.

Had they increased in proportion to the number of railway mail clerks, who handle what the railways are paid to transport in cars costing from \$7,500 to \$10,000 each, the railways would have received \$20,000,000 more than they did!

Had they increased in proportion to the increase in the total miles mail was carried, plus the increase in weight and the increase in the cost of service in labor and equipment, the railways would have received at least \$40,000,000 more revenue than they did!

And yet this government was formed to "establish justice" and "promote the general welfare!"

If the government paid the railways a living rate for carrying the mails, the American people would demand an immediate rectification of postal rates to meet a post office deficit of from \$20,000,000 to \$40,000,000 annually.

It is a theory that the government can do no wrong, but it is the misfortune of the railways that it can.

The relation of railway mail revenues to the force required to handle mail and to the postal revenues is clearly shown in the following statement:

Year	Railway Mail Revenues	Number of Railway Mail Clerks	Postal Revenues
1901.....	38,453,602	9,105	111,631,193
1902.....	39,963,248	9,627	121,848,047
1903.....	41,709,396	10,418	134,224,443
1904.....	44,499,732	11,621	143,482,624
1905.....	45,426,125	12,474	152,826,585
1906.....	47,371,453	13,598	167,932,783
1907.....	50,378,964	14,357	183,585,006
1908.....	48,517,563	15,295	191,478,663
1909.....	49,380,783	15,866	203,562,383
1910.....	48,913,888	16,578	224,128,657
1911.....	50,092,252	16,792	237,879,823
Increase per cent.....	30.3	84.4	112.2

EXPRESS COMPANIES.

In its Twenty-fifth Annual Report the Interstate Commerce Commission publishes a statement of the income account of express companies as reported to it for the years ending June 30, 1910, and 1911, the salient features of which are as follows:

Item	1911	1910
Number of Companies.....	13	13
Railway Mileage Operated.....	243,721	237,868
Express Operations:		
Gross Receipts from Operation.....	\$152,555,521	\$146,116,315
Less Express Privileges.....	73,956,450	69,917,562
Operating Revenues.....	\$78,599,071	\$76,198,753
Operating Expenses.....	67,070,637	61,690,473
Net Operating Revenue.....	\$11,528,434	\$14,508,280
Net Revenue from Outside Operations.....	13,118	10,527
Total Net Revenue.....	\$11,541,552	\$14,518,807
Taxes Accrued.....	1,315,201	1,126,726
Operating Income.....	10,226,351	13,392,081
Other Income from Investments, etc.....	6,309,354	5,633,792
Gross Income.....	16,535,706	19,025,873
Total Deductions, Interest, etc.....	1,168,134	1,037,316
Net corporate Income.....	\$15,367,572	\$17,988,557
Dividends Declared.....	5,848,082	\$5,928,103

The railway share in this income account comes under the item "express privileges" and amounts to less than 50% (48.5%) of the gross receipts from operation. It does not tally exactly with the amount received by the railways of the United States in 1911 (\$69,950,683) because the income account of the express companies includes two Canadian companies—the item for the Canadian Pacific alone would reduce the discrepancy to less than \$2,000,000.

Of the gross "operating revenues" it is estimated that at least \$55,000,000, or 70%, was paid to employes in salaries, wages and commissions. This estimate is based on the fact that in 1909 these employes received 74% of the operating revenues. The yearly compensation of express employes is approximately \$500 to \$550 per employe.

THE FREIGHT TRAFFIC.

It was in the freight traffic, "the most important service performed by the railroad," according to Prof. E. R. Johnson, that 1911 made the poorest showing for the railways. Although the reports to this Bureau cover 4,592 more miles of line than those for 1910, and 10,212 more miles of track, with all that that implies of increased investment and facilities, the returns show that there was a decrease in tonnage carried and in freight receipts. Owing to a slightly longer haul, there was an almost incalculably small increase in freight ton mileage.

There was *less than nine one-thousandths of a mill difference* between the receipts per ton mile in 1911 and 1910, but that difference, thanks to the Commission, being on the wrong side, spelled a loss of over \$2,000,000 in revenue. Such is the effect of infinitesimal changes when dealing with units reckoned by hundreds of billions.

The first statement under this title presents the ton mileage, revenue and receipts per ton mile during the past decade, with the changes in percentages by years:

SUMMARY OF FREIGHT MILEAGE, REVENUE AND RECEIPTS PER TON MILE,
1901 TO 1911.

Year	Number of Tons Carried One Mile	Increase over Preceding Year (Per Cent)	Freight Revenue	Increase over Preceding Year (Per Cent)	Receipts per Ton-Mile (Mills)
1901 Official....	147,077,136,040	.....	1,118,543,014	.....	7.50
1902 "	157,289,370,056	6.9	1,207,228,845	7.9	7.57
1903 "	173,221,278,993	10.2	1,338,020,026	10.8	7.63
1904 "	174,522,089,577	.7	1,379,002,693	3.0	7.80
1905 "	186,463,109,510	6.9	1,450,772,838	5.2	7.66
1906 "	215,877,551,241	15.7	1,640,386,655	13.1	7.48
1907 "	236,601,390,103	9.6	1,823,651,998	11.2	7.59
1908* "	218,381,554,802	D 7.7	1,655,419,108	D 9.2	7.54
1909* "	218,802,986,929	.2	1,677,614,678	1.3	7.63
1910* "	255,016,910,451	16.6	1,925,553,036	14.8	7.53
1911 (Bureau)...	250,440,118,000	D 1.8	1,889,504,180	D 1.8	7.54
Ten years' in- crease.....	.....	70.4%	.....	68.9	.....

NOTE.—In 1910 the miles of line represented was 240,830, in 1911, 232,117.

*Excludes figures of switching and terminal companies.

This table testifies to the remarkable steadiness of American freight rates for the past ten years. In the face of advancing cost in everything entering into the performance of their public service, with the rate of wages increased from 25% to 45%, with materials and supplies correspondingly high, here is proof that the railways have added nothing to the cost of living under which the whole people groan.

FREIGHT TRAFFIC SINCE 1888.

The essential facts shown in the foregoing table are emphasized in the next statement, which presents a comprehensive review of the freight traffic since the Interstate Commerce Commission began compiling the statistics:

SUMMARY OF TONS CARRIED, TON MILEAGE, MILEAGE OF FREIGHT TRAINS, AVERAGE TONS IN TRAINS, FREIGHT REVENUES AND AVERAGE RECEIPTS PER TON MILE, 1911 TO 1888.

Year	Tons Carried (Millions)	Tons Carried One Mile (Millions)	Mileage Freight Trains (Millions)	Average Tons in Train	Average Haul per Ton (Miles)	Freight Revenue (Millions)	Receipts per Ton-Mile (Cents)
1911 (a).....	1,694	250,440	617	406	148	1,889	.754
1910 (b)....	1,849	255,016	635	380	138	1,925	.753
1909 (b)....	1,556	218,802	568	363	142	1,677	.763
1908 (b)....	1,532	218,381	587	352	144	1,655	.754
1907.....	1,796	236,601	629	357	132	1,823	.759
1906.....	1,631	215,877	594	344	132	1,640	.748
1905.....	1,427	186,463	546	322	130	1,450	.766
1904.....	1,309	174,522	535	307	133	1,379	.780
1903.....	1,304	173,221	526	310	132	1,338	.763
1902.....	1,200	157,289	499	296	131	1,207	.757
1901.....	1,089	147,077	491	281	135	1,118	.750
1900.....	1,081	141,596	492	270	130	1,049	.729
1899.....	943	123,667	(c) 507	243	131	913	.724
1898.....	863	114,077	503	226	132	876	.753
1897.....	728	95,139	461	204	130	772	.798
1896.....	765	95,328	479	198	124	786	.806
1895.....	696	85,227	449	189	122	729	.839
1894.....	638	80,335	446	179	125	699	.860
1893.....	745	93,588	508	183	125	829	.878
1892.....	706	83,241	485	181	124	799	.898
1891.....	675	81,073	446	181	120	736	.895
1890.....	636	76,207	435	175	119	714	.941
1889.....	539	68,727	383	179	127	644	.922
1888.....	480	61,329	348	176	128	613	1.001
Increase							
1888 to 1911	253%	308%	77%	130%	15%	208%	D 24.6%

(a) Bureau figures, 232,117 miles represented.

(b) Excludes figures of switching and terminal companies.

(c) Includes 75% of mixed train mileage, that being the practice prior to 1900.

D Decrease.

It would seem impossible to frame a more comprehensive and convincing vindication of American railway methods than is presented in this table. Here is shown an increase of 308% in freight service rendered to the American people during the past 23 years, with an increase of only 77% in the movement of freight trains. This seeming miracle of transportation efficiency has been accomplished chiefly through an increase of 130% in train loads, accompanied by an increase of 15% in the length of haul.

Incidentally the table demonstrates the inaccuracy of train mileage as a statistical unit. In 1888 it meant the movement of trains averaging only 196 tons; in 1911, of trains averaging 406 tons.

But it is in the last column that the student will find the most complete justification of American methods of handling freight. The *decrease* of 24.6% in the average receipts per ton mile between

1888 and 1911 meant a remittance to American shippers of no less than \$618,586,800 on their freight bills last year!

Moreover the average of 1.001 cent in 1888 was the result of rates lower than the freight rates then or since prevailing in any European country. The reader may compare it with the following average receipts, published by the Interstate Commerce Commission in 1894, and the latest reported for the countries named:

	Rates per Ton Mile Cents			Rates per Ton Mile Cents	
	1908-10	1894		1908-10	1894
United Kingdom.....	2.33	2.80	Sweden.....	1.60	3.20
France.....	1.36	2.20	Norway.....	1.77	2.40
Germany.....	1.41	1.64	Denmark.....	2.00	2.88
Russia.....	.95	2.40	Holland.....	1.35	1.56
Austria.....	1.36	2.30	Belgium.....	1.17	1.60
Italy.....		2.50	Switzerland.....	2.86	3.30

No recent ton mile statistics for Italy are available. If the average freight haul were the same as that of France (80 miles), the average receipts per ton mile in 1909 would have been 1.97 cents. As the average haul was probably under 70 miles, the average receipts per ton mile were more likely in the neighborhood of 2.25 cents.

The British rate given in this table is the average of the North Eastern Railway, the only English road that has adopted the ton mile unit. In 1911 it carried 31,653,944 tons an average of 23.13 miles, making a total of 732,297,939 ton miles. Its freight revenues were \$17,106,892, yielding the average of 2.33 cents. Moreover, 74% of the North Eastern's freight was minerals, against 56.23% for products of mines in the United States in 1910.

The average ton mile receipts in Germany for the last fifteen years were as follows:

RECEIPTS PER TON AND TON MILE ON GERMAN RAILWAYS SINCE 1886.

	Per Ton	Per Ton Mile		Per Ton	Per Ton Mile
1909.....	\$1.39	.0141	1901.....	\$1.43	.0143
1908.....	1.40	.0141	1900.....	1.45	.0142
1907.....	1.39	.0140	1899.....	1.46	.0143
1906.....	1.40	.0141	1898.....	1.47	.0145
1905.....	1.40	.0142	1896.....	1.53	.0151
1904.....	1.43	.0142	1891.....	1.53	.0149
1903.....	1.42	.0142	1886.....	1.70	.0156
1902.....	1.42	.0143			

This table testifies to the remarkable stability of freight conditions in Germany during the last decade. Throughout that period the average haul has scarcely varied, from slightly under 100 kilometers. Where figures are not given since 1886, official data is not at hand.

The next summary presents the American freight traffic assignments as distributed by territorial groups by the Commission for 1910:

SUMMARY OF FREIGHT SERVICE ASSIGNMENTS BY TERRITORIAL GROUPS FOR THE YEAR ENDING JUNE 30, 1910.

	Tons Carried (Millions)	Tons Carried One Mile (Millions)	Mileage Freight Trains (Millions)	Average Tons in Train	Average Haul per Ton (Miles)	Freight Revenue (Millions)	Receipts per Ton Mile (Cents)
Group I....	75	6,996	25	263	93	80	1.115
Group II...	517	65,899	128	502	127	423	.641
Group III..	447	52,129	111	457	116	307	.588
Group IV...	76	14,476	32	423	192	95	.655
Group V....	129	19,364	65	278	150	155	.802
Group VII..	332	46,503	122	359	140	352	.751
Group VII..	39	10,624	27	375	271	101	.945
Group VIII.	102	18,667	65	263	183	179	.971
Group IX..	58	7,557	29	239	131	79	1.056
Group X...	74	12,801	31	369	174	154	1.196
United States....	1,849	255,016	635	380	138	1,925	.753

Note the variation between what a train mile stands for in groups II and IX, and then compare the train load in the latter group, 239 tons, with the average train load on the North Eastern Railway, the most economically operated of English roads, 128 tons in 1911, to which it has risen from 84 tons in 1902, and you begin to get an idea of how far American methods of handling freight lead European and all others.

PROPORTIONS OF COMMODITIES MOVED.

The next statement classifies the tonnage moved, according to commodities, for the years 1911 and 1910:

SUMMARY OF TONNAGE AND PROPORTION OF DIFFERENT CLASSES OF COMMODITIES MOVED, 1911 AND 1910.

Class of Commodity	1911		1910	
	Tonnage Reported as Originating On Line	Per Cent of Aggregate	Tonnage Reported as Originating On Line	Per Cent of Aggregate
Products of Agriculture.....	87,597,156	9.29	78,736,587	8.13
" " Animals..	23,346,893	2.47	20,294,144	2.10
" " Mines.....	518,634,064	55.03	544,604,373	56.23
" " Forests.....	101,541,905	10.77	113,010,825	11.67
Manufactures.....	136,495,890	14.48	139,678,391	14.42
Merchandise.....	39,017,110	4.14	35,718,413	3.69
Miscellaneous.....	35,955,756	3.82	36,421,276	3.76
Total.....	942,588,774	100.00	968,464,009	100.00

It will be observed that there was a slight decline in the percentage of products of the mines and forests, and a corresponding increase in the percentages of the other commodities. The effect of these changes would naturally result in a higher rate per ton mile. That the change is scarcely perceptible is due to constant reduction of specific rates by orders of the Commission. With population increasing in density, the income from high class commodities should increase. But the Commission, in the name of regulation, sees that it doesn't.

SUMMARY SHOWING PERCENTAGE OF FREIGHT TRAFFIC MOVEMENT BY CLASSES OF COMMODITIES, 1901 TO 1911.

Year	Low Rate Freight Percentage of Aggregate					High Rate Freight Percentage of Aggregate			
	Prod- ucts of Agri- culture	Anim- als	Mines	Forest	Total	Manu- factures	Mer- chan- dise	Miscel- laneous	Total
1901 Official.....	10.76	2.91	51.67	11.67	77.01	13.75	4.16	5.08	22.99
1902 ".....	9.23	2.64	52.36	11.64	75.87	14.49	4.37	5.27	24.13
1903 ".....	9.56	2.63	51.56	11.67	75.42	14.39	4.69	5.50	24.58
1904 ".....	9.59	2.74	51.56	12.53	76.42	13.41	4.83	5.34	23.58
1905 ".....	9.03	2.54	53.59	11.24	76.40	13.60	4.32	5.68	23.60
1906 ".....	8.56	2.32	53.09	11.24	75.21	14.81	4.06	5.92	24.79
1907 ".....	8.62	2.29	53.39	11.38	75.68	15.41	3.89	5.02	24.32
1908 ".....	8.74	2.46	55.72	11.35	78.27	13.15	4.04	4.54	21.73
1909 ".....	8.92	2.49	55.60	11.75	78.76	13.15	4.11	3.98	21.24
1910 ".....	8.13	2.10	56.23	11.67	78.13	14.42	3.69	3.76	21.87
1911 (Bureau).....	9.29	2.47	55.03	10.77	77.56	14.48	4.14	3.82	22.44

TON MILEAGE DATA ON SELECTED COMMODITIES.

The next statement presents data specially reported to the Commission covering ton mile statistics and revenues for eight selected

commodities for the year 1910. It covers less than 54% of the mileage of the railways of the United States:

SUMMARY OF SELECTED COMMODITIES FOR THE YEAR ENDING JUNE 30, 1910—
130,395 MILES REPRESENTED.

Commodity	Freight Carried in Carload Lots	Ton-Mileage of Freight Carried in Carload Lots	Revenue from Freight Carried in Carload Lots	1911 Average Receipts per Ton per Mile from Same Cents	1910 Average Receipts per Ton per Mile from Same Cents
Grain.....	31,947,009	7,067,690,568	\$44,553,330	0.630	0.611
Hay.....	5,856,185	954,623,830	9,731,590	1.019	1.025
Cotton.....	3,400,316	689,594,719	12,573,674	1.823	1.781
Live Stock.....	10,754,108	2,449,310,036	29,802,514	1.217	1.166
Dressed Meats.....	2,407,454	724,239,606	6,548,955	.904	.905
Anthracite Coal.....	28,202,577	5,104,428,347	30,083,630	.589	.603
Bituminous Coal.....	192,479,389	22,228,778,428	110,139,107	.495	.512
Lumber.....	68,482,732	11,891,569,514	87,225,470	.734	.770

This is the summary by which ex-Statistician Adams expected to remedy the failure of the Commission's statistics to reflect the changes in average receipts caused by the relative quantities of the different classes of commodities offered for transportation. It has been continued by his successor with verbatim letter press comment, including Professor Adams' remark that "European railway statistics, especially those of Germany, are much more satisfactory in this regard."

As a matter of fact, neither European railway statistics in general nor German statistics in particular begin to reflect the changes in receipts as affected by the relative quantities of different classes transported as satisfactorily as do the Commission's own reports. The German statistics divide the freight traffic into express, fast freight, general freight, post, military supplies, cattle, dead bodies, and miscellaneous, and gives the tonnage, ton mileage, average haul and revenue from each class under general and special tariffs and in 5 and 10 ton lots. But only shippers and railway officials have the key to what commodities are included in the special tariffs and classifications, and it would be an interminable and unprofitable job to attempt to trace the effect of changes in the relative quantities of commodities upon the average ton kilometer receipts. How little these have been affected by the changes of the past ten years may be judged by the table of German ton mile receipts given on a preceding page.

No table in the exhaustive jungle of German railway statistics begins to afford as concise and satisfactory a reflection of the changes in the relative quantities of commodities carried as the table on page 83 of this report, compiled from the reports of the Commission for the past ten years.

RATES IN NEW SOUTH WALES.

In New South Wales, where the government operates the 3,760 miles of railway in the colony, and does what it pleases about rates, the Commission requires special reports on selected commodities covering 17 classes. From these it is possible to select seven which correspond more or less with those given by our Commission. They are presented in the next statement:

STATEMENT OF AVERAGE HAUL AND TON MILE RECEIPTS ON THE GOVERNMENT RAILWAYS OF NEW SOUTH WALES FOR YEARS ENDING JUNE 30, 1910, AND 1911.

Commodity	1910		1911	
	Average Haul Miles	Receipts per Ton Mile (Cents)	Average Haul Miles	Receipts per Ton Mile (Cents)
Coal and Shale.....	29.41	1.06	29.01	.94
Firewood.....	26.68	1.58	26.64	1.60
Grain and Flour.....	247.08	.72	262.58	.70
Hay, Straw and Chaff.....	208.52	.76	203.81	.76
Wool.....	299.07	3.90	296.68	3.98
Live Stock.....	268.79	2.38	256.99	2.34
General Merchandise (including all other goods).....	91.63	3.20	91.83	3.04
Total.....	84.69	2.00	80.65	1.82

These returns are accompanied by the official note that "The above earnings are exclusive of terminal charges." On all freight the revenue amounted to one-sixth more than was accounted for in the tonnage totals, which would bring the ton mile receipts including terminal charges up to 2.12 cents.

VIII- EARNINGS AND EXPENSES

Following the practice of the Commission before the innovation in accounting methods, which since 1907 have impaired anything like direct or close comparison with preceding statistics, the Bureau, in natural sequence to the *Public Service* of the railways presents a brief review of their receipts and the disposition of their earnings.

In doing this it has been thought advisable to exclude as far as possible all complications arising from the intercorporate relations of the various companies that go to make up "the railways of the United States." To this end it is deemed essential to confine the attention of the reader absolutely to the revenues which are derived from the service of transportation. These revenues are the result of such fares and rates as under the regulatory statutes, federal and state, the railways are permitted to charge, except such amounts as they receive through contracts with the express companies and the unremunerative pay they are forced to accept from the Government for carrying the mails.

These revenues, or earnings, as they were formerly more correctly termed, are received from the carrier companies from the only thing the Interstate Commerce Commission is empowered to regulate—transportation.

As for the expenses, it follows that they should take account exclusively of payments necessary to provide the service that produces revenue. Broadly speaking, these come under three heads, expenses of maintenance and operation, taxes and capital charges, which include rentals of leased roads operated. With this explanation, the first summary under this title presents the income account of the railway of the United States for the years 1911 and 1910:

COMPARATIVE INCOME ACCOUNT OF THE RAILWAYS IN THE UNITED STATES,
CONSIDERED AS A SYSTEM, FOR THE YEARS ENDING JUNE 30, 1911 AND 1910.

Item	Amount	
	1911 Bureau's Figures	1910 Official Figures (a)
Miles Represented.....	232,117	240,830
Operating Revenue:		
From Passengers.....	\$ 645,675,465	\$ 628,992,473
From Freight.....	1,889,504,180	1,925,553,036
From Mail.....	50,092,252	48,913,888
From Express.....	69,950,683	67,190,920
Other Revenue from Operation..	91,105,914	79,776,288
Total Revenues from Operation..	\$2,746,560,611	\$2,750,667,435
Operating Expenses.....	1,885,403,196	1,822,630,433
Taxes (b).....	106,394,331	103,795,701
Total.....	1,991,797,527	1,926,426,134
Net Revenues from Operation.....	754,763,084	824,241,301
Net Revenue from Outside Operations	4,801,461	2,225,455
Total Operating Income.....	759,564,545	826,466,756
Disposition:		
Interest on Funded Debt.....	360,686,381	349,092,709
Interest on Current Liabilities...	15,070,222	13,207,243
Rent Paid for Lease of Road (b)...	121,506,278	125,615,940
Additions and Betterments		
Charged to Income.....	48,592,009	55,061,675
To Other Reserves.....	5,773,046	2,640,893
Other Deductions.....	31,912,936	24,429,754
Total Deductions.....	583,540,877	570,048,214
Income Available for Dividends		
and Surplus.....	\$176,023,678	\$256,418,542

(a) Does not include returns for switching and terminal companies.

(b) Includes, both for 1911 and 1910, the sum of \$5,761,108 paid by leased roads out of rentals (Vide Com. Report 1910, page 77), a like amount being deducted from the item of "Rent paid for lease of road" both years.

The services of a chartered accountant or professional statistician are not needed to demonstrate from the above figures for 1910 that the statement that \$405,771,416 was paid in dividends, upon which the refusal to permit rate advances was predicated by the Commission, was a cruel and costly misconception of the facts. In a footnote to the table in the Commission's report from which the figures for 1910 are taken, we are told that the final balance in addition to the sums for "additions and betterments charged to income," included above, comprise "\$5,000,000 (estimated) advances to cover deficits in operation of weak lines," "\$42,108,820 miscellaneous deductions" and "surplus \$117,030,974."

As a matter of fact, it took over \$18,000,000 to make up the deficits of weak companies in 1910. Adding this to the

miscellaneous deductions reported, and ignoring the surplus, would show over \$60,000,000 to be deducted from the final sum of \$256,418,542, leaving \$196,000,000, in round numbers, available for dividends and surplus. How much of this actually went to dividends and how much was carried to surplus, no one inside or outside of the Commission's "Bureau of Statistics" has the information or wisdom to say.

The figures for 1911 in the above statement, which are corroborated by the Commission's summary for the year compiled from the monthly returns of revenues and expenses of the railways, shows a decrease from 1910 of over \$80,000,000 in the income available for dividends and surplus.

Analysis shows that this decrease was largely due to the increase in operating expenses and in interest on funded debt. While minor items vary one way or the other, these two items alone accounted for a reduction of over \$74,000,000 in the sum available for dividends.

The increase of over \$11,000,000 in the amount paid in interest on funded debt indicates how the railways have been forced to borrowing to make good certain expenditures inseparably involved with maintenance and improvement which formerly were more freely charged to current income or even included in operating expenses.

Adding interest on funded debt \$360,686,381; rent paid for lease of road \$121,506,278; and the whole sum available for dividends and surplus, \$176,023,678, together, and you have a total of \$657,216,337, which represents the maximum sum which capital can claim out of the total revenues derived from transportation operations in the year 1911. No manipulation of the returns, no transferring of interest and dividends from one pocket and account to the other, can alter the immutable fact that you cannot divide any amount received from transportation into parts whose sum is greater than the amount so received. If railway labor, fuel, supplies, taxes and the incidentals of operation absorb 76% of railway revenues, no statistical legerdemain can find more than 24% left of such revenues for capital.

If the above sum of \$657,216,337, without any deduction for working surplus, had been devoted to paying interest and dividends, it would have amounted to less than 4.65% on the net capitalization

of the property represented, less than 3.48% on their gross capitalization and less than 3.24% on the \$20,000,000,000 which Senator Cummins two years ago estimated as the probable result of their physical valuation.

INCOME FROM OTHER SOURCES.

Whence comes the glittering bubble of unearned dividends that has misled the Commission, dazzled and bamboozled the public and proved the undoing of the railways?

Like pretty much every other feature of the accounts of American railways that has been seized on to magnify and exploit their financial iniquities, it has its source in the intercorporate relations of the companies. Innocent and helpful as these have been in operative results, they are responsible for misrepresentations as to capital and gross exaggeration of dividends that have had a most pernicious effect on a sane consideration of the railway problem.

In the capital account they are represented by a duplication of stocks and bonds to the extent of over \$4,000,000,000. In the income account of the railways for 1910, they are included in the item, "Other income" \$252,219,946, of which the greater part was derived from the following sources:

Dividends Declared on Stocks Owned or Controlled	\$139,655,948
Interest Accrued on Funded Debt Owned or Controlled.....	34,220,386
Interest on Other Securities, Loans and Accounts.....	28,597,178
Total.....	\$202,473,512

This shows the source of almost exactly half of the dividends so ostentatiously flashed before the popular mind as justification for refusing a necessary advance in rates in February, 1911.

In the returns to this Bureau for 1911, the item for "Other income" from other sources than transportation amounted to \$251,-632,733, and it was this nontransportation revenue that enabled the 378 roads reporting to pay the following dividends:

Dividends on Common Stock.....	\$212,358,238
Dividends on Preferred Stock.....	45,976,388
Total Dividends.....	\$258,334,606

Without this item of "Income from other sources," the railways had not enough net corporate income available to meet this dividend

by \$80,000,000. With it, the entire sum of \$176,023,678 "available for dividends and surplus" in 1911 might have been distributed among:

Advances to Cover Deficits in Operation of Weak Lines.....	\$ 32,538,874
Credit of Profit and Loss.....	134,193,937
Total.....	\$166,732,811

Which would leave less than \$10,000,000 of the \$2,746,560,611 gross revenues derived from transportation to be distributed in dividends direct from the operating companies.

DISTRIBUTION OF RENTS.

What becomes of the item of rent for leased lines which figures in the above tables may be best answered by reproducing the following statement from page 77 of the Commission's statistical report for 1910:

CONDENSED INCOME ACCOUNT AND PROFIT AND LOSS ACCOUNT OF LEASED ROADS FOR THE YEAR ENDING JUNE 30, 1910.

INCOME ACCOUNT

Gross Income from Lease of Road.....	\$130,496,239	
Salaries and Maintenance of Organization.....	332,242	
Taxes Accrued.....	5,761,108	
Net Income from Lease of Road.....		\$124,402,889
Other Incomes.....		4,258,231
Gross Corporate Income.....		128,661,120
Deductions from Gross Corporate Income (a).....		62,064,718
Net Corporate Income.....		66,596,402
Disposition of Net Corporate Income:		
Dividends Declared from Current Income.....	35,738,530	
Appropriations for Additions and Betterments and for New Lines or Extensions.....	2,700,190	
Appropriations for Other Reserves.....	92,029	
Total.....		38,580,749
Balance to Credit of Profit and Loss.....		28,015,653

PROFIT AND LOSS ACCOUNT

Credit Balance on June 30, 1909 (b).....	66,767,964
Credit Balance for Year 1910 from Income Account.....	28,015,653
Total.....	94,783,617
Dividends Declared out of Surplus.....	18,674,561
Difference.....	76,109,056
Other Profit and Loss Items—Debit Balance.....	4,280,735
Balance Credit June 30, 1910, Carried to Balance Sheet.....	71,828,321

(a) A separate table shows that \$19,640,657 of this amount was interest on funded debt and \$3,313,099 was other interest.

(b) This balance in the report for 1909 was given as \$34,557,981.

From this it appears that over \$107,415,000 of the \$124,402,889 net income of the leased or nonoperating roads in 1910 were distributed as interest or dividends. The item "dividends declared out of surplus" is included in the sum distributed because it is an annual declaration.

With slight variations the items of this statement may be applied proportionately to a distribution of the \$127,267,386 paid by the operating roads reporting to this Bureau as rental for the 41,188 miles of line leased by them. On the estimate \$2,545,347,520 as the capital value of these leased lines, the sum of \$107,415,000 distributed in 1910 for interest and dividends would be equal to slightly over 4.2%.

DISTRIBUTION OF GROSS EARNINGS.

The next statement accounts for the distribution of the gross earnings (\$2,746,560,611) of the railways reporting to this Bureau in 1911 more in detail than appears in the income account, together with a comparison with a similar division for 1910 and 1907:

SUMMARY SHOWING THE DISTRIBUTION OF GROSS EARNINGS OF 232,117 MILES OF OPERATED LINE, COMPARED WITH THE PERCENTAGES FOR 1910 AND 1907.

Item	Gross Earnings			
	1911.....	\$2,746,560,611	1910.....	2,750,667,435
	1907.....	2,589,105,578		
	Amount 1911	Per Cent of Gross Earnings		
		1911	1910	1907
Operating Expenses:				
Maintenance of Way and Structures....	\$358,350,309	13.05	13.40	13.27
Maintenance of Equipment.....	423,250,273	15.41	15.02	14.22
Traffic Expenses.....	58,476,156	2.13	2.04	.....
Transportation Expenses.....	976,057,219	35.54	33.34	37.50
General Expenses.....	69,269,239	2.52	2.49	2.54
Total.....	\$1,885,403,196	68.65	66.29	67.53
Disposition of Same:				
Pay of Employees.....	1,201,259,607	43.73	41.58	41.42
Fuel for Locomotives.....	226,904,756	8.26	7.92	7.74
Oil and Water for Locomotives.....	20,598,750	.75	.68	.88
Loss and Damage.....	59,958,493	2.19	1.99	1.83
Material for Way and Structures.....	376,681,590	13.72	3.66	
Supplies and Expenses.....			1.65	
Stationery and Printing.....			.69	
Law Expenses.....			.40	15.66
Advertising.....			.30	
Insurance.....			.27	
Miscellaneous, including Hire and Rent of Equipment, Etc.....			7.15	
Total Expenses.....	\$1,885,403,196	68.65	66.29	67.53
Taxes (a).....	106,394,331	3.87	3.77	3.10
Rentals of Leased Roads (b).....	121,506,278	4.42	4.56	4.69
Interest on Funded Debt and Current Liabilities.....	375,756,603	13.67	13.17	13.14
Dividends.....	138,683,343	5.05	7.91	8.78
Deficit of Weak Companies.....	32,538,874	1.18	.67	.19
Betterments and Reserves.....	54,365,055	2.00	2.10	1.50
Other Deductions.....	31,912,931	1.16	1.53	1.07
Total (gross earnings).....	\$2,746,560,611	100.00	100.00	100.00

(a) Includes taxes paid by leased roads.

(b) Less taxes paid leased roads.

It is to be regretted that in the multiplication of the detail classifications of expenditures required of the railways, there has been an unavoidable tendency to obscure, if not omit altogether, essential facts. Throughout the entire 115 items into which the account of operating expenses is divided, there is no clear line or rule by which it is possible to determine how much is expended for labor, material, equipment, supplies and other expenses.

In the maintenance of way and structures division, we know that labor constitutes about 70% of the cost but are not told the cost of materials for "bridges, trestles and culverts" and are left to conjecture that it is included under "other track material."

In the maintenance of equipment account, where the three items of repairs to locomotives, passenger cars and freight cars in 1910 absorbed over \$317,000,000, there is no clue as to how much of this was for new material or parts and how much was for labor. We do know, however, that over 60% of the maintenance cost of this department went to labor, about 2.25% went for "shop machinery and tools," and 12% to the illusive item "depreciation" under seven subdivisions.

In the "transportation expenses" account, over 60% goes to labor, 27% to fuel, water and lubricants for the locomotives, and nearly half of the remainder to "loss and damage" and personal injury claims.

The new British Railway Companies Accounting Act, 1911, provides for a very general separation of the items for wages and materials from the purchase cost of new rolling stock and other expenses.

IX TAXES

The 378 railway companies reporting to this Bureau, and owning 190,929 miles of the 232,117 they operated, paid \$100,633,223 in taxes in the year 1911. To get an approximate estimate of the tax bill of all the railways, it is necessary to add a sum equivalent to the taxes paid by the owners of leased roads, which for 1910 was reported as \$5,761,108. A further sum of \$2,200,000, or less than \$200 per mile, should be added for the unreported 11,112 miles of line, included in the grand total. This makes an aggregate of \$108,594,331. This is \$514,159 less than the total reported by the Commission from the monthly returns, exclusive of "taxes charged to income account by lessor and other nonoperating companies." However, it will be used in the following statement of taxes paid by the railways of the United States during the past twenty-three years:

SUMMARY OF TAXES PAID BY THE RAILWAYS OF THE UNITED STATES SINCE 1889, ANNUALLY AND RELATIVELY.

Year	Taxes Paid	Per Mile	Percentage of Earnings
1911 (Bureau Figures).....	\$108,594,331	\$446	3.87
1910 # (Official Figures).....	103,795,701	431	3.77
1909 #.....	90,529,014	384	3.74
1908 #.....	84,555,146	367	3.53
1907.....	80,312,375	353	3.10
1906.....	74,785,615	336	3.21
1905.....	63,474,679	292	3.04
1904.....	61,696,354	290	3.12
1903.....	57,849,569	281	3.04
1902.....	54,465,437	272	3.15
1901.....	50,944,372	260	3.20
1900.....	48,332,273	250	3.24
1899.....	46,337,632	247	3.53
1898.....	43,828,224	237	3.51
1897.....	43,137,844	235	3.84
1896.....	39,970,791	219	3.48
1895.....	39,832,433	224	3.70
1894.....	38,125,274	211	3.56
1893.....	36,514,689	215	2.99
1892.....	34,053,495	209	2.90
1891.....	33,280,095	206	3.04
1890.....	31,207,469	199	2.96
1889.....	27,590,394	179	2.86
Aggregate Taxes 23 Years.....	\$1,293,213,206	.....	.....
Percentage of Increase.....	294%	149%	35%

Here is a case where percentages tell a story of anti-railway discrimination without parallel in the United States. The huge aggregate of \$1,293,213,206 paid in taxes in twenty-three years has little meaning except in the light of the facts revealed by the percentages. Neither does the percentage of increase in the taxes paid annually have any special significance in a country where we are accustomed to see values increase by leaps and bounds. But the increase of 149% in taxes paid per mile of line simply proves that the railway have no voice in the choice of assessors.

In 1889 the net capitalization of the railways was \$50,000 per mile in round numbers, against \$60,000 in 1911, showing an increase of only 20% in capital value, against an increase of 149% in taxes per mile.

The increase in the percentage of taxes to gross earnings is equally significant. Where the tax collector in 1889 was satisfied with less than 3% of the gross receipts, he now takes nearly 4%. Moreover, 3% on gross receipts of any business where labor has a prior lien of over 40% is not a "square deal" as taxation goes in the United States.

If ever there was a case of taxation without representation, the situation of the railways of the United States affords a striking example. They pay one-eighth of the total taxes levied in the Republic, and a colored colporter on the Mississippi bottoms is treated with more consideration when it comes to levying taxes.

X

DAMAGES AND INJURIES TO PERSONS

The tide of payments by the railways on account of injuries to persons and loss and damage of property took a decided upward turn during the year 1911, reaching the highest point absolutely and relatively to traffic it has yet touched. The accounts as reported to the Bureau for 1910 and 1911 were as follows:

SUMMARY OF PAYMENTS ON ACCOUNT OF INJURIES TO PERSONS AND LOSS AND DAMAGE DURING THE YEARS 1910 AND 1911.

Account	Amount 1910	Amount 1911	Per cent of Earnings	
			1910	1911
Injuries to Persons				
Maintenance of Way.....	\$ 1,887,261	\$1,941,793		
Maintenance of Equipment.....	1,375,924	1,806,571		
Transportation.....	20,020,960	22,231,383		
Total.....	\$23,284,145	\$25,979,747	.86	.95
Loss and Damage:				
To Freight.....	21,852,391	24,455,611		
To Baggage.....	370,323	304,834		
To Property.....	4,808,993	5,051,527		
To Live Stock, etc.....	3,675,968	4,166,774		
Total, Loss and Damage.....	\$30,707,675	\$33,978,746	1.13	1.24
Grand Total.....	\$53,991,820	\$59,958,493	1.99	2.19

With the easy grace born of beneficence at the expense of someone else, the Employers' Liability Commission has submitted to Congress a workman's compensation bill that will add from 12% to 15% to the amount paid by the railways on account of injuries to persons. The bill provides that every common carrier engaged in interstate or foreign commerce by rail shall pay compensation to any employe who sustains personal injury in line of duty, or to his dependents in case of his death. It eliminates the common law doctrine of negligence. The compensation is to be on the general basis of an equivalent to one-half wages, except where the injury is caused by the willful intention of the employe to injure himself or another or in case of intoxication on duty. The worst feature of the bill is the shifting of the burden of proof in a class of cases

where the sentiment has already been strong in favor of nearly all claimants.

The next table shows how the loss and damage tax on the railways has grown out of all proportion to the increase in traffic since 1899:

PAYMENTS ON ACCOUNT OF "LOSS AND DAMAGE" AND "INJURIES TO PERSONS"
1899 TO 1911 AND PROPORTION TO GROSS EARNINGS.

Year	Loss and Damage		Injuries to Persons	
	Amount	Per Cent of Earnings	Amount	Per Cent of Earnings
1899.....	\$ 5,976,082	.455	\$ 7,116,212	.541
1900.....	7,055,622	.474	8,405,980	.565
1901.....	8,109,637	.510	9,014,144	.567
1902.....	11,034,686	.639	11,682,756	.676
1903.....	13,726,508	.722	14,052,123	.739
1904.....	17,002,602	.861	15,838,179	.802
1905.....	19,782,692	.946	16,034,727	.770
1906.....	21,086,219	.907	17,466,864	.751
1907.....	25,796,083	.996	21,462,504	.829
1908.....	34,631,243	1.447	20,088,543	.839
1909.....	32,922,986	1.386	23,456,038	.988
1910.....	30,707,675	1.134	23,284,145	.859
1911.....	33,978,746	1.238	25,979,747	.946
Increase in 12 years, per cent....	469%	172%	265%	75%

It will be interesting to watch these figures in future reports when compulsory compensation takes the place of negotiation, compromise and adjudication.

The railways of the United Kingdom in the calendar year 1910 paid \$1,403,548 compensation to employes, \$907,763 compensation for personal injury to passengers, and \$1,903,186 compensation for damage to or loss of goods—a total of \$4,214,498, which was less than 7/10th of 1 per cent. on their gross earnings. There has been no increase in this item of expenses of British roads in ten years. It is proportionately one-third that of American roads.

XI

LOCOMOTIVE FUEL

Writing at a time when coal miners the world over are demanding increased wages and mine owners are declaring that higher wages mean higher prices, the question of the cost of fuel to the railways is more than a burning one. In recent years the railways have left no resource of science and experiment untried to increase the tractive power of a pound of coal, the final test of which is the production of revenues in proportion to the cost of coal. That they have been able to hold this proportion nearly level in the face of the advancing cost of fuel is proof of the economy of their large and costly modern locomotives.

In 1911 the expenditures of the railways for fuel were the largest in their history, as shown by the following statement covering the years 1899 to 1911:

SUMMARY OF COST OF LOCOMOTIVE FUEL AND PROPORTION TO EARNINGS AND EXPENSES OF AMERICAN RAILWAYS, 1911 TO 1899, WITH PRICE OF BITUMINOUS COAL PER TON DURING THE SAME PERIOD.

Year	Miles of Line	Cost of Locomotive Fuel	Proportion to Operating Expenses	Proportion to Gross Earnings	Price of Coal at Mines per Ton*
1911 Bureau figures.....	232,117	\$226,904,756	12.037	8.26	.....
1910 Official.....	240,830	217,780,953	11.953	7.92	1.12
1909 ".....	235,402	188,735,868	11.804	7.81	1.07
1908 ".....	230,494	201,905,054	12.097	8.44	1.12
1907 ".....	227,454	200,261,975	11.471	7.74	1.14
1906 ".....	222,340	170,499,133	11.119	7.34	1.11
1905 ".....	216,973	156,429,245	11.278	7.51	1.06
1904 ".....	212,243	158,948,886	11.893	8.05	1.10
1903 ".....	205,313	146,509,031	11.675	7.70	1.24
1902 ".....	200,154	120,074,192	10.776	6.96	1.12
1901 ".....	195,561	104,926,568	10.602	6.61	1.05
1900 ".....	192,556	90,593,965	9.809	6.09	1.04
1899 ".....	187,534	77,187,344	9.478	5.88	.87

*These figures are from the latest report of the United States Geological Survey.

Note.—Since 1907, the Official figures do not include returns from switching and terminal companies while the Bureau figures do.

The returns now divide fuel between yard and road locomotives, that for the former in 1911 costing \$30,650,697, for the latter

\$196,254,059. The Commission also distinguishes between large and small roads, the former using more than 97% of the total consumption of fuel.

OIL AS FUEL.

A recent report published by the United States Geological Survey shows that on 21,075 miles of American railways locomotives burning oil are used. The total consumption of oil for this purpose during the year 1910 amounted to 24,526,883 barrels, while the aggregate mileage traveled by oil-burning locomotives was 88,318,497 miles.

XII ACCIDENTS

If there is any disproportion of casualties to persons on American railways compared to foreign railways relatively to the units of risk, of which there is no evidence, it is due to the fact "that, outside of the army and navy, the American is not reared with that discipline which becomes a part of the man and governs his actions mechanically, as it were, rather than as a result of reasoning."

These quoted words are from the official report of the *Board of Block Signal and Train Control*, which for four years has been investigating the practicability of automatic stop apparatus, to no satisfactory conclusion. It also testifies "*that, nowhere in the world have appliances for safeguarding railway transportation been so highly developed as in this country.*"

But aside from the congenital, mental and temperamental qualities of the American people, to which the *Control Board* traces our alleged unenviable pre-eminence in railway disasters, the American public is entitled to know that the railway accidents which are paraded in the press with "ghoulish glee," as Grover Cleveland would say, are not disproportionate to the myriad risks involved in an industry that dwarfs that of all the nations of Europe combined.

THE UNITS OF RISK.

Let us consider what are the units of risk. They are present in every mile of track and in every rail in every mile. Only the movement of trains is needed concurrent with some defect of material, some oversight, mishap or personal carelessness, recklessness or negligence, and the unit of risk develops into a casualty or a horror. The rail, then, and what goes over it have within them the potentialities of all railway accidents, properly so-called. Passenger mileage and freight ton mileage are the accepted units by which we come the nearest to measuring the movement of traffic over the rails. For Europe and the United States these units of risk compare as follows:

	Europe 1909	United States 1910
Miles of line.....	204,864	240,830
Passengers Carried 1 Mile.....	72,117,000,000	32,338,496,329
Freight Tons Carried 1 Mile.....	116,177,000,000	255,016,910,451

Numerically the odds of risk, as represented in the factors of mileage and weight carried one mile, are very greatly against the American railways. Besides the excess of 18% in miles of line, as shown in preceding pages, the United States has 113,084 miles of auxiliary track, equal to the combined mileage of Germany, Austria-Hungary, France and Great Britain, on all of which the possibility of accident has to be guarded against with even greater vigilance than that bestowed on the main line. If switches and sidings could be obviated, a fertile cause of accidents would be eliminated.

The weight of the equipment necessary to move a freight traffic double that of Europe is another factor of risk three times greater here than abroad. This is almost, if not wholly, overcome by the universal application here of the train brake where it is unknown on European freight trains, except on a few express freight trains. In fact, less than one-third of the foreign wagons have brakes at all.

With the foregoing conditions in mind, what are the facts with regard to railway fatalities in Europe and the United States? The totals are given in the following statement:

	Europe 204,486 miles Represented 1910	United States 240,830 miles Represented 1911
Passengers Killed.....	671	356
Employes Killed.....	2,641	3,163
Other Persons.....	4,322	(a) 6,438
Total.....	7,634	9,857

(a) Of these 5,284 are classified as trespassers

Naturally there were more passengers killed on European railways than on American, because of the preponderance of passenger traffic abroad. But when the part played by freight trains in American accidents is taken into account, as it must be, the showing of the comparative safety of American railways should silence the misrepresentations regarding their indifference to human life.

The actual responsibility is bad enough without making it appear worse by false and invidious comparisons.

In proportion to the task they are called on to perform in handling half the railway traffic of the world, American railways are as safe as any in the world.

THE SAFETY OF AMERICAN RAILWAYS.

Following its practice of the past eight years, the Bureau has compiled a statement of those companies reporting to it that went through the year without a single fatality to a passenger in a train accident. This is the second year this compilation is not so complete as the writer could wish, because the Commission has abandoned the call for accident statistics in its annual reports. These have been relegated to the quarterly *Accident Bulletins* of the Commission, where they are arranged to afford as sensational matter for quarterly press notices as possible. The inclusion of industrial casualties to the number of 79,237 for 1911 and charging them to the railways helps to make the indictment as blood-curdling as any railway baiter could wish.

The statement of immunity from fatality in train accidents compiled from returns of the roads reporting to this Bureau, for the year 1911, presents what should be a welcome contrast to the harrowing Bulletins of the Commission, as follows:

SUMMARY OF MILEAGE AND TRAFFIC OF ROADS ON WHICH NO PASSENGER WAS KILLED IN A TRAIN ACCIDENT DURING THE YEARS 1911, 1910, AND 1909.

	1911	1910	1909
Number of Operating Companies.....	276	253	347
Mileage of These Companies.....	90,472	85,003	159,657
Passengers Carried.....	259,726,687	255,789,329	570,617,563
Passengers Carried 1 Mile.....	10,103,760,000	9,273,441,000	18,953,025,000
Tons of Freight Carried.....	759,745,370	659,299,799	1,116,877,052
Tons of Freight Carried 1 Mile.....	102,239,787,000	86,118,089,000	151,974,495,000
Passengers Killed in Train Accidents.....	None	None	None
Passengers Injured in Train Accidents.....	2,061	1,733	2,585

Here is the proof that American railways can be and are run with an immunity from fatalities without parallel in any other country, because no other country has anything like the mileage and traffic represented in these figures. The mileage is equal to that of Germany, Austria-Hungary and the United Kingdom combined,

the passenger mileage is almost equal to that of the British railways, and the freight ton mileage is nearly as great as that of all Europe, and yet these 276 railway companies went through the year 1911 without a single fatality to a passenger in a train accident.

The writer does not believe that reports of injuries are of any comparative statistical value. What constitutes a reportable injury is as indefinite as a piece of string. But the reader, if he will, can compare the total of passengers injured in train accidents in the above table on 90,000 miles of American railway with the 1,111 killed in similar accidents on the 23,387 miles of British railways in 1910.

The most extensive system covered by British reports has a mileage of less than 3,000 miles. Included in the above statement are no less than three systems operating over 4,000 miles each.

For the most part, moreover, this 90,000 miles is single track road, operated without block signals or any other special aid to safety, beyond admirable rules and regulations and the eternal vigilance, watchfulness and resourcefulness of American railway employes.

WELL-NIGH PERFECT IMMUNITY.

But the claim for safety on American railways has further support in the returns of railways which just missed getting into the class of complete immunity by a single fatality to a passenger in a train accident. Here is the record which includes one system of over 7,000 miles and another of over 3,000:

SUMMARY OF MILEAGE AND TRAFFIC OF ROADS ON WHICH ONLY ONE PASSENGER WAS KILLED IN A TRAIN ACCIDENT DURING THE YEARS 1911, 1910 AND 1909.

	1911	1910	1909
Number of Operating Companies.....	14	13	10
Mileage of these Companies.....	25,105	22,647	27,681
Passengers Carried.....	64,597,791	66,180,574	185,447,507
Passengers Carried 1 Mile.....	2,873,948,000	2,492,598,000	5,778,621,000
Tons of Freight Carried.....	135,054,793	175,619,700	213,086,612
Tons of Freight Carried 1 Mile.....	21,772,634,000	22,967,352,000	40,177,881,000
Passengers Killed in Train Accidents.....	14	13	10
Passengers Injured in Train Accidents.....	1,046	623	778

The presence in this list of one road with an exceptionally large suburban passenger traffic makes it especially interesting and instructive, since American suburban business more nearly approaches the regular European passenger traffic in length of journey.

IMMUNITY FROM ACCIDENTS NOT SPORADIC.

The next statement is particularly valuable as tending to indicate that the immunity from fatalities shown in the foregoing tables is not in itself accidental, but to a remarkable degree consecutive. It is to be regretted that the Commission's innovation in the mode of reporting accidents renders this summary less complete than it would otherwise be:

STATEMENT SHOWING NUMBER OF RAILWAYS AND MILEAGE ON WHICH NO PASSENGER HAS BEEN KILLED IN A TRAIN ACCIDENT, 1904 TO 1911.

Period	Number of Companies	Miles of Line No Fatalities To Passengers In Train Accidents
Eight Years, 1911-1904.....	12	5,900
Seven Years, 1911-1905.....	57	16,383
Six Years, 1911-1906.....	92	20,590
Five Years, 1911-1907.....	115	24,841
Four Years, 1911-1908.....	148	35,343
Three Years, 1911-1909.....	181	52,377
Two Years, 1911-1910.....	205	56,171
One Year, 1911.....	253	90,472

For five years the same American railways with a mileage greater than that of the United Kingdom have not killed a single passenger in a train accident.

To appreciate the significance of this entire statement, the reader should bear in mind that in 1904 the statistics of this Bureau covered less than two-fifths of the mileage of the country, and not until 1906 did they reach anything like their present completeness. In 1909 no less than 287 companies, representing 108,710 miles, reported two years immunity from fatalities to passengers in train accidents.

To aid the student to a broad comprehension of these figures, the next statement presents a report of the British Board of Trade showing the average numbers of passengers killed and injured in train accidents, and the average number of passenger journeys for three periods of ten years and one of four, ending 1884, 1894, 1904 and 1908, respectively, and for the years 1909 and 1910:

AVERAGE NUMBER OF PASSENGERS KILLED AND INJURED IN TRAIN ACCIDENTS
ON BRITISH RAILWAYS 1875 TO 1910.

Year	Number of Passengers Killed and Injured in Train Accidents		Number of Passenger Journeys (exclusive of Journeys by Season-Ticket Holders)* (Millions)
	Killed	Injured	
1875-1884 (Average).....	28	915	598.4
1885-1894 ".....	21	600	798.6
1895-1904 ".....	12	581	1,100.7
1905-1908 ".....	29	461	1,244.2
1909.....	1	390	1,264.8
1910.....	23	1,111	1,306.7

*The number of annual season tickets issued was 730,273 in 1909 and 752,663 in 1910.

The average passenger journey on British railways is approximated at a little under eight miles. The returns for 1909 and 1910 show how unwise it is to base conclusions on railway accidents on the figures of a single year. In a country as large as the United States, with such a vast railway system, the average per year cannot show such a 23 to 1 variation.

RAILWAY ACCIDENTS IN 1911.

By legislative enactment, approved May 6, 1910, the number of American railway casualties was almost exactly doubled, albeit railway operation had no more to do with it than the pen that signed the bill. This is the testimony of quarterly Accident Bulletin No. 40, which gives the yearly tables with a statement that they "are not comparable with those of the annual bulletins for preceding years, which only included four classes of accidents, namely, collisions, derailments, casualties to passengers and casualties to employes on duty."

Bulletin No. 40 further says, "The total number of casualties for the year is 160,555 (10,396 killed and 150,159 injured). Of this number 439 killed and 79,237 injured are classed under the head of 'industrial accidents,' which did not involve the movement of cars or engines on rails." Adding 439 to 79,237 makes 79,676, which is only 601 short of half the total casualties.

But this is not all. Hitherto the Accident Bulletins failed to report the casualties to trespassers and other persons besides passengers and employes. This oversight has been remedied under the law of May 6, 1910, and the result swells the total casualties in Bulletin

No. 40 by no less than 17,125 (6,438 killed and 10,687 injured) or, classified another way, 10,898 trespassers and 6,227 other persons.

In order to preserve the continuity of these statistics of railway accidents, which have no value except as they relate to the same classes of accidents, the information in the next table is confined to the data that has been published quarterly under the Act of March 3, 1901:

SUMMARY OF CASUALTIES TO PERSONS IN RAILWAY ACCIDENTS FOR THE YEARS
ENDING JUNE 30, 1911, AND 1910.

Class of Accident	1911				1910			
	Passengers		Employees		Passengers		Employees	
	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured
Collisions.....	69	3,299	321	3,446	78	4,428	355	3,333
Deraillments.....	41	2,524	256	2,108	89	2,946	253	1,868
Miscellaneous Train Accidents, including Locomotive Boiler Explosions.....		105	75	1,843	52	142	107	1,590
Total Train Accidents.....	110	5,926	652	7,397	217	7,516	715	6,791
Coupling or Uncoupling Cars....			209	2,966			206	2,985
While doing Other Work about Trains or while Attending Switches.....			131	18,185			157	18,240
Coming in Contact with Over- head Bridges, Tunnels or any Signal Apparatus or any Fixed Structure above or at the Side of the Track.....	5	29	77	1,517	3	33	96	1,377
Falling from Cars or Engines or while getting on or off same....	131	2,749	542	13,097	137	2,833	586	13,196
Other Causes.....	53	3,338	1,317	4,077	64	3,374	1,623	26,029
Total (other than train acci- dents).....	189	6,116	2,276	39,842	204	6,240	2,668	61,827
Total (all classes).....	299	12,042	2,928	47,239	421	13,756	3,383	68,618
Totals in 1909.....					335	12,116	2,456	51,804
" " 1908.....					406	12,645	3,358	56,344
" " 1907.....					647	13,597	4,353	62,689
" " 1906.....					418	11,185	3,807	55,524
" " 1905.....					537	10,040	3,261	45,426
" " 1904.....					420	8,077	3,367	43,266
" " 1903.....					321	6,973	3,233	39,004
" " 1902.....					303	6,089	2,516	33,711

This table indicates that American railways were operated in 1911 with fewer fatalities to passengers than for any year since the publication of the Accident Bulletins began, both absolutely

and relatively. As to casualties to employes, the record shows a gratifying decrease in 1911, but it is not so convincing because of changes in classification of those included. It is not clear, for instance, how many of the following casualties given in a separate table under the new law were formerly included in the general returns for employes:

	Killed	Injured
Employes:		
Not on Duty.....	292	954
In and Around Shops.....	73	35,530
On Boats or Wharves.....	47	1,204
At other Places.....	74	5,420
Total Employes not Required in Monthly Reports Previous to July 1, 1910..	486	43,108

One of the idiosyncrasies of the latest innovations in railway statistics is the exclusion of accidents "with air or steam hose" from those occurring in the "coupling or uncoupling cars." If coupling and uncoupling air or steam hose is not an inseparable incident to the coupling and uncoupling of cars, where the law requires train brakes on all cars, what is it?

. ACCIDENTS TO OTHER PERSONS.

The record so far as casualties closely or remotely related to the operation of railways is concerned is completed by the inclusion of a table giving the number of trespassers and other persons, not passengers or employes, killed and injured in 1911, as follows:

	Killed	Injured
Trespassers.....	5,284	5,614
Other Persons not Trespassing.....	1,154	5,073
Total Other Persons.....	6,438	10,687

If these and the casualties to employes "not on duty" be added to the totals in the first table of accidents in 1911, it makes an aggregate of 10,151 killed and 113,076 injured.

Of this startling total only 429 fatalities (69 to passengers, 321 to employes and 39 to trespassers) come within the class preventable by the safety appliances that apply to the movement of trains.

The death roll of trespassers, including more than half of all the fatalities, is an indictment of the legislators who vote millions into the pockets of patentees of so-called safety devices and refuse to make 350,000 miles of railway track forbidden ground to a thoughtless, careless and reckless army of trespassers.

ACCIDENTS ON BRITISH RAILWAYS.

In order to get anything like an equal basis for comparison with the accidents on British railways, it is necessary to present their statistics covering a period of ten years—as one year's traffic on our railways is approximately equal to ten of theirs. In the following statement the details and totals are those furnished by the British Board of Trade, to which the railways make annual returns:

SUMMARY OF CASUALTIES ON BRITISH RAILWAYS FOR 1910 AND TOTALS FOR TEN YEARS.

Class	1910		1909	
	Killed	Injured	Killed	Injured
A. Passengers:				
From Accidents to Trains, Rolling Stock, Permanent Way, etc..	23	1,111	1	390
By Accidents from other Causes.....	98	2,969	93	2,930
B. Servants of Companies or Contractors: #				
From Accidents to Trains, Rolling Stock, Permanent Way, etc...	9	113	16	129
By Accidents from Other Causes.....	411	25,024	353	23,834
C. Other Persons:				
From Accidents to Trains, etc	2	7		26
Persons Passing over Railways at Level Crossings.. ..	75	35	63	36
Trespassers (including suicides).....	442	136	459	133
Persons on Business at Stations, etc., and Other Persons not Coming in Above Classifications.....	61	715	48	724
Total All Classes 1910.....	1,121	30,110	1,033	28,383
Total All Classes 1909.....	1,033	28,383		
" " " 1908.....	1,128	28,485		
" " " 1907.....	1,211	25,975		
" " " 1906.....	1,252	20,444		
" " " 1905.....	1,180	18,236		
" " " 1904.....	1,158	18,802		
" " " 1903.....	1,262	18,557		
" " " 1902.....	1,171	17,814		
" " " 1901.....	1,277	18,375		
Total Ten Years.....	11,793	225,181		

#Of contractors' servants in 1910 six were killed and eighteen injured.

The marked increase in injured in 1907 was a matter of definition and not of casualties, and serves to illustrate the folly of basing any conclusions on returns of injuries. The British roll of accidents could be cut in two by a reasonable definition; and if ours

were confined to reporting those causing the loss of a limb, or resulting in permanent injury, the figures would be reduced even more and they would mean something.

FATALITIES IN RAILWAY ACCIDENTS SINCE 1888.

The next statement gives the total fatalities connected with the transportation industry since the Commission began compiling the data in 1888. It preserves the original classifications and is confined to fatalities, so as to afford a definite basis for comparison with the statistics of other countries.

PASSENGERS, EMPLOYES AND OTHER PERSONS KILLED IN RAILWAY ACCIDENTS FROM 1888 TO 1911.

Year	Passengers	Employees	Other Persons		Total
			Trespassers	Not Trespassing	
1911.....	299	2,928	5,284	1,154	9,665 [#]
1910.....	421	3,383	No data	No data	3,804 [†]
1909.....	335	2,456	5,124	854	8,769
1908.....	406	3,358	5,560	940	10,264
1907.....	647	4,353	5,612	1,044	11,656
1906.....	418	3,807	5,381	949	10,618
1905.....	537	3,261	4,865	940	9,703
1904.....	441	3,367	5,105	868	10,046
1903.....	355	3,233	5,000	879	9,840
1902.....	345	2,516	4,403	871	8,588
1901.....	282	2,675	4,601	897	8,455
1900.....	249	2,550	4,346	660	7,865
1899.....	239	2,210	4,040	634	7,123
1898.....	221	1,958	4,063	617	6,859
1897.....	222	1,693	3,919	603	6,437
1896.....	181	1,861	3,811	595	6,448
1895.....	170	1,811	3,631	524	6,136
1894.....	324	1,823	3,720	580	6,447
1893.....	299	2,627	3,673	647	7,346
1892.....	376	2,554	3,603	614	7,147
1891.....	293	2,660	3,465	611	7,029
1890.....	286	2,451	3,062	536	6,335
1889.....	310	1,972		\$3,541	5,823
1888.....	315	2,070	Not Given	\$2,897	5,282

[#]If fatalities to employes not on duty in shops, etc., are included this total would be 10,151.

[†]Exclusive of trespassers and others in 1910.

[‡]Includes trespassers.

A mere glance at this table shows how railway casualties rise and fall with the volume of freight traffic. Mark the decrease of fatalities in the years 1894, 1905 and 1908 following the business recessions of those years.

RELATION OF ACCIDENTS TO PASSENGER TRAFFIC.

While the last table indicates the effect of the freight traffic on the total railway fatalities, the next sets forth the relation of passenger traffic to fatalities to passengers through a summary of passengers carried one mile to ONE killed in a train accident:

PASSENGERS CARRIED ONE MILE TO ONE KILLED, 1889 TO 1911.

Year	Passengers Killed in Train Accidents	Passengers Carried One Mile	Passengers Carried One Mile to One Killed
1911.....	110 (a)	32,837,769,000	349,550,734
1910.....	217 (b)	32,338,496,329	180,661,991
1909.....	131 (c)	29,452,000,000	288,745,100
1908.....	165 (d)	29,082,836,944	196,505,648
1907.....	410	27,718,554,030	72,802,600
1906.....	182	25,167,240,831	183,702,488
1905.....	350	23,800,149,436	68,000,427
1904.....	270	21,923,213,536	81,197,087
1903.....	164	20,915,763,881	127,535,745
1902.....	170	19,689,937,620	115,823,162
1901.....	110	17,353,588,444	157,759,894
1900.....	93	16,038,076,200	172,463,183
1899.....	83	14,591,327,613	175,799,127
1898.....	74	13,379,930,004	180,809,864
1897.....	96	12,256,939,647	127,676,454
1896.....	41	13,049,007,233	318,268,469
1895.....	30	12,188,446,271	406,281,542
1894.....	162	14,289,445,893	88,206,456
1893.....	100	14,229,101,084	142,291,010
1892.....	195	13,362,898,299	68,522,555
1891.....	110	12,844,243,881	116,765,853
1890.....	113	11,847,785,617	104,847,660
1889.....	161	11,553,820,445	71,762,859

- (a) Of these only 94 were passengers in the proper sense of the term.
- (b) Of these only 179 were passengers in the proper sense of the term.
- (c) Of these only 102 were passengers in the proper sense of the term.
- (d) Of these only 148 were passengers in the proper sense of the term.

In respect to fatalities to passengers in train accidents, the figures of the last column in this table prove that the year 1911 stands in a class by itself. Not since 1901 have as few passengers been killed in train accidents, and the number carried one mile has almost doubled. Only in 1895, when there had been a coincident drop in both passenger and freight traffic in the first half of the year, have the railways experienced any such relative immunity from fatalities to passengers in train accidents. The explanation is simple and will be found in the statistics of freight carried and the reduction of the payroll. Such a laying off of employes as occurred in 1911 means the retention of the more efficient, whose efficiency

in turn is increased by the removal of such a rush of work as made 1892 and 1907 the black letter years in the annals of American railway fatalities.

Experienced and efficient men, amenable to regulations made for the good of the service, loyal to their employers and themselves in a semi-public occupation, these are the chief assurances of safe railway operation. And just as the railways command such service they rise in the scale of efficiency as public utilities. This is true as much of the hundreds of thousands along the 350,000 miles of track as of the hundreds of thousands that man the trains.

The reason for the note to the above table in regard to persons included in the term "passenger" in 1908-1911 is that the Commission includes in it for accident statistics travelers who are not passengers for income and mileage statistics.

DECREASING HAZARD OF TRAIN CREWS.

The same influences that made for the general safety of railway operation in 1911 produced like gratifying results in reducing the fatalities among trainmen, as the next statement shows:

SUMMARY SHOWING NUMBER OF TRAINMEN KILLED IN RAILWAY ACCIDENTS, 1889 TO 1911, WITH RATIO TO NUMBER EMPLOYED.

	Trainmen	Trainmen in Yards	Yard Trainmen Switching Crews	All Trainmen	Number of Trainmen for One Killed
1889.....	1,179			1,179	117
1890.....	1,459			1,459	105
1891.....	1,533			1,533	104
1892.....	1,503			1,503	113
1893.....	1,567			1,567	115
1894.....	1,029			1,029	156
1895.....	1,017			1,017	155
1896.....	1,073			1,073	152
1897.....	976			976	165
1898.....	1,141			1,141	160
1899.....	1,155			1,155	155
1900.....	1,396			1,396	137
1901.....	1,537			1,537	136
1902.....	1,507			1,507	135
1903.....	2,021			2,021	123
1904.....	1,181	487	488	2,156	120
1905.....	1,155	386	493	2,034	133
1906.....	1,360	400	575	2,335	124
1907.....	1,507	459	630	2,596	125
1908.....	1,097	362	496	1,955	150
1909.....	789	270	313	1,372	202
1910.....	1,056	325	474	1,855	169
1911.....	905	313	490	1,703	180

Here is shown a great gain for safety among trainmen, under which class is included enginemen, firemen, conductors, brakemen, baggagemen, rear-end flagmen, switchmen on regular switching train crews, train porters, parlor car attendants and other train employes. The terms on the payrolls and in accident statistics may not be absolutely synonymous, but they are so nearly so as to afford a reliable basis for such computations as the above.

In general occupational health, including the mortality from accidents, as shown in extracts from the report of the Registrar-General of Great Britain, given in the Bureau's report for 1910, railway employes are far above the average.

ACCIDENTS FOR THE FIRST QUARTER OF 1911-12.

Accident Bulletin No. 41, covering the months of July, August and September, 1911, shows an increase of fatalities over the preceding quarter and a decrease when compared with the corresponding months in 1910. The figures in detail follow, in comparison with those for the first quarter of the preceding year.

SUMMARY OF ACCIDENTS DURING JULY, AUGUST AND SEPTEMBER, 1911 AND 1910.

	1911		1910	
	Killed	Injured	Killed	Injured
Passengers, in Train Accidents.....	65	2,617	63	1,871
Passengers, all Causes.....	116	4,751	135	3,822
Employes (on duty) Killed in Train Accidents.....	104	1,551	209	1,801
Employes (on duty) killed in coupling.....	42	697	56	722
“ “ “ “ Total.....	626	11,062	869	12,148
Total, Passengers and Employes.....	742	15,813	1,004	15,970
Employes not on Duty.....	83	195	79	312
Trespassers.....	1,557	1,682	1,512	1,707
Other Persons not Trespassers.....	376	1,417	353	1,391
Total.....	2,758	19,107	2,948	19,380

This Bulletin (No. 41) contains an innovation which is a step backward from the glimmer of light these Bulletins have shed upon the causes of railway accidents. Beginning with Bulletin No. 2 (1901) they have contained tables giving the causes of the prominent train accidents, from which it has been possible to extract some side lights as to the responsibility, and to apportion the blame between the two branches of the service. These tables have enabled

this Bureau to prove the preponderance of the freight traffic as the responsible factor in American railway accidents through the publication of such an analysis of the "prominent collisions" of the year, as the following for 1911:

SUMMARY SHOWING CLASS OF TRAINS IN PROMINENT COLLISIONS OF YEAR,
1911.

Kind of Train in Accident	Number of Collisions	Persons	
		Killed	Injured
Passenger and Passenger.....	17	63	540
Freight and Passenger.....	25	55	311
Freight and Freight.....	36	76	132
Total.....	78	194	983

Only once before since these records have been kept has the number of persons killed in collisions not been very much greater in collisions between freight and passenger trains than in those between either of the other classes, and in several years it has exceeded the fatalities in both.

CAUSES OF ACCIDENTS.

From these tables it has been possible to compile an important summary showing the presumptive causes of these prominent collisions, and inferentially of all railway accidents. Brought down to June 30, 1911, this compilation is as follows:

Cause	Number of Accidents
Negligence, Error or Forgetfulness of Some Member of Train Crew.....	337
Recklessness, Carelessness, Overlooking or Disregarding Orders, or Taking Chances, etc.....	297
Disobedience.....	64
Incompetence or Inexperience.....	23
Defect of Equipment, Tires, Wheels, etc.....	84
Defect of Roadway.....	35
Malicious Acts.....	31
Misadventure, Washouts, Landslides, Cyclones, etc.....	104
Undiscovered.....	46
Intoxication.....	2
	1,023

During 1911 no less than 13 of the "prominent collisions" were directly traceable to disregard or failure of block signals. The discontinuance of these tables, with their all too brief analysis or statement of the causes of the accidents enumerated, is not compensated for by the reports of the Commission's chief inspector of safety appliances. He very naturally shows bias in favor of automatic devices, which can never make good the failures through negligence, carelessness or disobedience of the human equation.

CAUSES OF BRITISH RAILWAY ACCIDENTS.

Of 819 accidents inquired into by the official inspectors of the *British Board of Trade* in 1910, nearly half (387) were found to be due to "want of caution or misconduct on the part of the injured person"; 147 were due to "want of caution or breach of rules, etc., on the part of servants other than the persons injured"; 154 were ascribed to "misadventure or accidental," and the remaining 131 were divided among defective systems of working, defective apparatus, etc., or want of sufficient safeguards and non-observance of rules. Of the accidents not inquired into, 4,035 out of 4,136, or nearly 98%, were classed under the first three causes named.

In conclusion the official report says: "It is difficult to assign more than 232 of these cases to preventable causes. It will be observed that the accidents comprised under the first three headings which, so far as they are affected by rules, etc., may be called unpreventable, outnumber the preventable accidents by more than 20 to 1."

OVERWORK SELDOM A CAUSE OF ACCIDENT.

Further analysis of the exhaustive reports of the expert inspectors to the *British Board of Trade* shows that in 1910 barely 2% of the accidents occurred to men working in excess of 12 hours, and that in 1911 out of 901 cases investigated only 22 happened to men who had been working in excess of 12 hours and of these 13 happened during the 13th hour. In not a single instance was the accident found due to overwork. The following statement shows the relation of accidents to the hours the persons involved have been on duty on British railways for a period of seven years:

HOURS WHEN BRITISH ACCIDENTS OCCUR.

Three Months to	Off Du- ty	Hours on Duty When Accidents Occurred																	
		1st	2d	3d	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th or over	
Sept. 30, 1910.....	2	12	21	17	25	24	10	22	20	14	13	12	3	2	1	1	0	0	
Dec. 31, 1910.....	2	27	26	18	19	21	22	20	15	16	21	17	15	6	2	0	0	1	
Mar. 31, 1911..	5	32	16	25	23	15	11	17	20	15	16	16	6	3	0	0	0	0	
June 30, 1911	1	24	25	15	23	25	15	15	19	20	23	12	11	2	2	1	1	0	
Year 1911.....	10	95	88	75	90	85	58	74	74	65	73	57	35	13	5	2	1	1	
" 1910.....	13	57	103	83	68	88	72	72	62	64	63	51	32	7	6	1	2	3	
" 1909.....	11	61	72	92	78	69	77	68	60	65	54	51	37	8	0	0	1	0	
" 1908.....	6	60	103	83	85	77	81	72	70	63	57	53	35	8	8	0	0	0	
" 1907.....	1	70	86	78	78	71	64	59	48	68	62	43	35	14	12	5	3	1	
" 1906.....	6	52	64	70	86	63	81	68	70	71	61	42	39	7	4	3	0	2	
" 1905.....	3	52	74	65	54	71	64	59	48	53	56	41	37	7	3	3	0	1	
Seven Years.....	50	447	590	546	539	524	499	472	432	449	426	338	250	64	38	14	7	8	

This table establishes beyond reasonable question that overwork is practically a negligible factor in causing railway accidents. Out of 5,562 cases investigated in seven years only 29, or one-half of 1%, happened where the employe had been working beyond the 14th hour and only 131, or 2.3%, when he had been working beyond the 12th hour. Moreover, during these seven years "overwork" was never found to be the explanation of the accident. It is perhaps worthy of note that more casualties occurred during the second hour than in any other hour of the seventeen. No one has attempted to account for this phenomenon.

RAILWAY ACCIDENTS IN EUROPE.

Confining the inquiry to fatalities, the latest returns of accidents on European railways from official sources are as follows:

KILLED IN EUROPEAN RAILWAY ACCIDENTS.

Country	Year	Passengers	Employees	Other Persons	Total	Preceding Year
United Kingdom.....	1910	121	420	580	1,121	1,033
Germany..	1909	121	533	726	1,380	1,353
Russia.....	1908	237	744	1,969	2,950	2,859
France.....	1908	#27	300	†298	625	659
Austria.....	1909	34	154	125	313	279
Hungary.....	1909	28	136	192	356	331
Italy.....	1909-10	52	166	113	331	293
Spain.....	1907	25	64	213	302	219
Portugal.....	1904				55	37
Sweden.....	1908	10	31	50	91	102
Norway.....	1909-10	1	5	7	13	12
Belgium.....	1909	6	46	33	85	129
Denmark†.....	1909-10	2	9	19	30	26
Holland.....	1909	3	20	16	39	45
Switzerland.....	1909	12	39	25	76	90
Roumania.....	1908-09	13	22	53	88	100
Total.....		692	2,689	4,419	7,855	7,567

#In train accidents only; other accidents to passengers included under "Other Persons."

†Excluding suicides.

‡Statistics cover State railways only.

It will be observed that nearly three-fifths of the fatalities on European railway are to "other persons." As noted, passengers not killed in train accidents in France are included under the head of "other persons."

Throughout Europe it is the practice in official railway statistics to draw a sharp and clear line between those who are killed through some fault or mischance of the railway and those accidents which are the result of the person's own dereliction or carelessness—*unvorsichtige*, as the German statistics have it. Any such just distinction would relieve American railways of seven-eighths of the odium attaching to them through the publication of the quarterly Accident Bulletins. It would be made immediately under government ownership.

The railway mileage for Europe represented in the foregoing table is less than that of the United States ten years ago.

XIII

RAILWAY RECEIVERSHIPS IN 1911

Except for the passing of the Wabash Railroad into the hands of the Court the calendar year 1911 would have had a phenomenally small record in the matter of receiverships. Including it, five roads, operating 2,606 miles and with a capitalization of \$210,606,882, were placed in the hands of receivers. Excluding the Wabash, the total mileage involved was only 91 miles, with a capitalization of only \$2,648,400—the smallest amount in any year except 1901 since 1876.

On the other hand, thirteen roads, with a mileage of 1,386 miles and \$40,741,453, emerged from receiverships through foreclosure sales. Of these the most important was the International & Great Northern Railway (1,160 miles, \$34,692,053 capitalization).

The following statement gives the names, mileage, funded debt and capital stock of the roads for which receivers were appointed in 1911:

	Mileage	Funded Debt	Stock
Atlantic Northern & Southern.....	17	\$ 111,500	\$ 178,400
Eagles Mere Railroad.....	10	83,500	50,000
Jamestown, Chautauqua & Lake Erie.....	37	750,000	750,000
Jamestown & Chatauqua.....	27	250,000	475,000
Wabash Railroad.....	2,515	115,156,496	92,801,986
Total.....	2,606	\$116,351,496	\$94,255,386

The number, mileage and capitalization of the railways that have failed since 1876, as given in the "*Railway Age Gazette*," are as follows:

RECEIVERSHIPS SINCE 1876.

	Roads	Miles	Bonds and Stock (Thousands)		Roads	Miles	Bonds and Stock (Thousands)
1876.....	42	6,662	\$ 467,000	1894.....	38	7,025	\$ 395,791
1877.....	38	3,637	220,294	1895.....	31	4,089	369,075
1878.....	27	2,320	92,385	1896.....	34	5,441	275,597
1879.....	12	1,102	39,367	1897.....	18	1,537	92,509
1880.....	13	885	140,265	1898.....	18	2,069	133,701
1881.....	5	110	3,742	1899.....	10	1,019	52,285
1882.....	12	912	39,074	1900.....	16	1,165	78,234
1883.....	11	1,990	108,470	1901.....	4	73	1,627
1884.....	37	11,038	714,755	1902.....	5	278	5,835
1885.....	44	8,836	385,480	1903.....	9	229	18,823
1886.....	13	1,799	70,346	1904.....	8	744	26,069
1887.....	9	1,046	90,318	1905.....	10	3,593	176,321
1888.....	22	3,270	186,814	1906.....	6	204	55,042
1889.....	22	3,803	99,664	1907.....	7	317	13,585
1890.....	26	2,963	105,007	1908.....	24	8,009	596,359
1891.....	26	2,159	84,479	1909.....	5	859	78,095
1892.....	36	10,508	357,692	1910.....	7	735	51,427
1893.....	74	29,340	1,781,046	1911.....	5	2,606	210,606
Total 36 years.....					724	131,839	\$7,632,560

TWO DECADES OF RAILWAY PROGRESS

RAILWAY RESULTS IN THE UNITED STATES FOR YEARS, ENDING JUNE 30, 1891,
1901 AND 1911 WITH PERCENTAGES OF INCREASE BY DECADES.

Item (m=thousands)	1891	1901	1911	1911 over 1891 %	1911 over 1901 %
Population.....	63,844,000	77,612,569	93,983,000	47.2	21.1
Miles of Line (operated).....	161,275	195,562	243,229	50.8	24.4
Miles of All Track.....	207,446	265,352	358,313	72.7	35.1
Net Capitalization (m).....	\$7,860,219	\$9,482,649	\$14,434,309	83.7	52.2
“ “ per Mile of Line.....	49,920	49,925	59,345	18.8	18.8
“ “ “ “ “ Track....	37,890	36,547	40,257	6.2	10.1
Gross Earnings from Operation (m).....	1,096,761	1,588,526	\$2,818,780	157.1	77.6
“ “ per Mile Operated.....	6,800	8,123	11,588	70.4	42.6
Expenses of Operation (m).....	731,887	1,030,397	1,935,511	164.5	87.8
“ “ per Mile Operated.....	4,538	5,269	7,957	75.3	50.8
Net Earnings from Operation.....	364,873	558,129	883,268	142.1	58.2
“ “ per Mile Operated.....	2,262	2,854	3,631	60.5	27.2
Ratio of Expenses to Earnings.....	66.73%	64.86%	68.66	4.4	5.8
Receipts from Passengers (m).....	\$281,178	351,356	658,772	134.3	87.5
“ “ Freight (m).....	736,793	118,543	1,929,335	161.9	72.5
“ “ Mail (m).....	24,870	38,453	51,287	106.2	33.4
“ “ Express (m).....	21,594	31,122	72,704	237.2	133.6
Passengers Carried (m).....	531,183	607,278	979,101	84.5	61.0
“ “ One Mile (m).....	12,844,243	17,353,588	33,508,240	160.9	93.0
Average Receipts per Passenger Mile (cents).....	2.142	2.013	1.966	d 8.9	d 2.4
“ Passengers in Train.....	42	42	58	38.3	38.3
Freight Tons Carried (m).....	675,608	1,089,226	1,727,988	155.8	58.7
“ “ Carried One Mile (m).....	81,073,784	147,077,136	255,448,802	215.1	73.6
Average Receipts per Ton Mile (mills).....	8.95	7.50	754	d 18.7	0.5
Locomotives, Number.....	32,139	39,584	61,107	90.0	54.3
“ Weight without Tender (tons).....	1,381,977	2,177,340	4,672,700	238.1	114.6
Passenger Cars (number).....	27,949	35,969	49,448	76.9	37.7
Freight Cars (number).....	947,300	1,464,328	2,203,616	132.6	50.5
“ “ capacity (tons).....	21,687,900	39,536,856	81,096,724	274.0	107.6
Average Tons in Train.....	181	281	404	123.2	43.7
Employees (number).....	784,285	1,071,169	1,695,000	116.2	58.2
“ per 100 Miles of Line.....	486	548	697	43.8	27.2
“ Compensation.....	\$438,704,400	\$610,713,701	1,230,800,000	183.1	101.5
Proportion of Gross Earnings.....	40.00%	38.39%	43.67%	9.1	13.7
“ of Operating Expenses.....	59.95%	59.27%	63.55%	.....	.....
Taxes.....	\$33,280,095	\$50,944,372	\$109,108,490	227.5	110.1
Per Mile of Line.....	206	260	448	117.4	71.5
Proportion of Gross Earnings.....	3.04%	3.20%	3.87%	.....	.....

XIV STATISTICS OF

The essential features of railway statistics for the leading countries of the world are set forth in the following statement. So far as possible the information has been obtained from official sources or authoritative publications, and where estimates have been inserted, as noted, they have been computed from ascertained facts. The average journey and haul given for British traffic is that furnished by the *London Statist* and is corroborated by the figures of

Country	Year	Miles Covered by Capitalization	Capitalization or Cost of Construction (c)	Passenger Revenue	Freight Revenue	Other Revenues
United Kingdom.....	1910	23,387	\$6,421,170,080	\$210,612,890	\$299,397,860	\$ 93,499,130
German Empire.....	1910	36,740	4,163,615,519	200,407,588	456,766,493	71,368,311
France.....	1908	24,915	3,535,954,000	149,648,147	179,700,564	5,367,222
Russian Empire.....	1908	41,888	3,378,839,810	80,787,020	306,014,545	39,811,560
Austria.....	1909	13,873	1,609,853,523	42,460,000	128,000,000	12,380,000
Hungary.....	1909	12,562	814,534,000	22,537,800	59,593,600	4,290,600
Italy (a).....	1909-10	8,810	1,131,300,000	35,000,550	56,188,090	6,469,360
Spain.....	1905	8,432	649,919,610	16,215,866	34,694,555	6,190,271
Portugal.....	1908	1,465	162,385,280	4,039,350	5,715,150	351,750
Sweden.....	1908	8,242	270,124,168	12,147,936	21,493,600	885,976
Norway.....	1909-10	1,845	77,142,728	2,416,542	3,224,308	338,498
Denmark (a)...	1908-09	1,215	63,625,230	5,254,200	5,491,260	740,880
Belgium (a)....	1909	2,678	491,185,000	17,241,269	35,505,641	572,621
Holland (a)....	1909	1,902	(d)158,000,000	11,608,800	11,774,800	1,313,200
Switzerland.....	1909	3,034	330,030,000	17,130,680	21,005,279	1,658,642
Roumania.....	1908-09	1,979	186,320,270	5,214,582	8,816,240	773,351
Total Europe.....		192,967	23,433,999,218	\$832,723,220	\$1,633,381,985	\$246,011,372
Canada.....	1911	25,400	1,398,089,701	50,566,894	124,743,015	13,423,585
Argentina.....	1909	15,363	862,811,760	23,720,160	70,144,320	6,325,920
Japan (a).....	1910	4,624	384,812,007	19,685,266	18,468,172	2,964,780
British India...	1910	32,099	(f)1,448,700,000	63,261,000	100,419,000	5,049,000
New South Wales.....	1911	3,760	248,228,770	10,100,380	17,458,950	1,866,540
United States...	1911	243,229	14,434,309,000	(a) 658,772,785	1,929,335,456	230,672,156

the North Eastern Railway of England, the only British road giving such information.

From the data here furnished it is possible to make a close approximation of the actual passenger and freight mileage and traffic conditions in the countries named. Within the four corners of this

FOREIGN RAILWAYS

table are contained the figures establishing the amazing leadership of the United States in everything pertaining to the development of transportation by rail.

For the purposes of this table, taxes have been added to the operating expenses of American railways:

Here the writer wishes to make acknowledgment for the courtesy of the Railway Departments of Japan, Canada and New South

Total Revenues	Operating Expenses	Per Cent Expenses to Revenues	Passengers Carried	Average Journey (Miles)	Freight Tons Carried	Average Haul (Miles)	Per Cent Net Revenues to Capital
\$ 603,509,880	\$ 372,891,030	61.8	1,758,426,383	(b) 7.8	514,428,803	(b)25.0	3.59
728,542,392	495,125,338	67.9	1,540,872,110	14.2	531,527,817	60.4	5.74
334,715,933	190,388,324	57.9	479,396,165	20.7	158,165,909	80.7	4.08
426,613,125	344,497,405	80.8	162,117,000	79.0	229,554,000	160.1	2.43
182,840,000	148,740,000	81.3	241,955,522	19.0	152,185,817	62.0	2.12
86,422,000	59,442,600	69.1	124,234,000	20.1	66,896,000	69.9	3.28
97,658,000	79,850,083	77.3	72,457,360	25.0	35,600,512	(b)66.0	1.57
57,100,692	27,750,936a	48.6	41,846,249	(b)26.0	22,662,548	69.4	4.50
10,106,250	4,672,500	46.2	14,585,698	(b)20.0	4,315,385	(b)54.0	3.35
34,527,512	28,040,840	81.2	54,163,160	16.5	33,086,800	44.0	2.43
5,979,348	4,421,464	73.9	12,598,036	15.9	4,684,053	38.8	2.18
11,486,340	10,689,840	93.0	21,302,909	21.7	4,800,604	53.3	1.29
53,319,531	36,773,255	67.7	160,107,172	14.8	54,682,253	49.3	3.37
24,696,800	20,597,760	83.4	44,501,000	17.8	16,146,900	51.2	2.59
39,794,601	27,044,511	67.9	105,038,663	12.3	16,165,115	45.3	3.86
14,804,173	9,769,081	66.0	8,319,958	42.6	6,384,406	(b)96.5	2.72
\$2,712,116,577	\$1,860,994,965	68.6	4,841,921,385	15.5	1,851,286,922	63.8	.....
188,733,493	131,034,784	69.4	37,097,718	70.0	79,884,282	20.0	3.12
100,190,400	59,509,920	59.4	51,060,084	24.2	32,594,871	120.9	4.71
41,118,281	21,030,494	51.1	128,306,960	21.9	23,655,620	80.8	5.22
168,729,000	89,595,000	53.1	371,580,000	36.1	65,600,000	134.3	5.46
29,424,540	16,975,170	61.1	60,919,628	10.2	10,054,796	80.6	4.61
2,818,780,398	(e)2,044,620,071	72.5	979,101,000	34.2	1,727,983,000	147.8	5.36

(a)State only. (b)Estimated. (c)From latest report, not always year named. (d)Estimated capital cost of Holland's railways not given since 1897. (e)Including taxes. (f)Valuing the Indian rupee at 33 cents (.324½).

Wales for early copies of the very complete and valuable railway statistics of their respective countries to the dates mentioned in the table.

RAILWAYS OF CANADA.

STATISTICS OF THE RAILWAYS OF THE DOMINION FOR THE YEARS ENDING JUNE
30, 1908, 1910 AND 1911.

	1908	1910	1911
Miles of Line Operated.....	22,966	24,731	25,400
Second Track.....	1,211	1,543	1,610
Yard Track and Sidings.....	4,546	5,155	5,550
All Tracks.....	28,723	31,429	32,560
Capital Cost*			
Stock.....	\$607,425,349	\$687,557,387	\$749,207,687
Funded Debt.....	631,869,664	722,740,300	779,481,514
Government Railways.....	109,423,104	118,018,751	119,615,666
Subsidies.....	166,291,482	190,753,063	202,179,254
Total Capital Cost.....	\$1,515,009,599	\$1,719,069,501	\$1,850,484,121
Per Mile of Line.....	65,968	69,513	72,854
Passenger Traffic			
Passengers Carried.....	34,044,992	35,894,575	37,097,718
Passengers Carried 1 Mile.....	2,081,960,864	2,466,729,664	2,605,968,924
Average Journey (miles).....	61	69	70
Average Passengers per Train.....	54	59	60
Mileage of Passenger Trains.....	31,950,349	35,022,541	36,985,911
Mileage of Mixed Trains.....	6,210,807	6,441,440	6,277,468
Receipts from Passengers.....	\$39,992,503	\$46,018,880	\$50,566,894
Receipts per Passenger Mile (cents)....	1.920	1.866	1.944
Freight Traffic			
Tons Carried.....	63,019,900	74,482,866	79,884,282
Tons Carried 1 Mile.....	12,961,512,519	15,712,127,701	16,048,478,295
Average Haul (miles).....	206	211	200
Freight Train Mileage.....	40,476,370	50,184,108	50,498,866
Average Tons per Train.....	278	311	305
Receipts from Freight.....	\$93,746,655	\$116,229,894	\$124,743,015
Receipts per Ton Mile (mills).....	7.23	7.39	7.77
Miscellaneous Receipts.....	\$13,179,155	\$11,707,443	\$13,423,585
Total Receipts.....	146,918,313	173,956,217	188,733,493
Expenses of Operation			
Way and Structures.....	\$20,778,610	\$27,035,603	\$29,245,093
Maintenance of Equipment.....	20,273,626	26,002,301	26,127,633
Traffic Expenses.....		4,366,177	4,831,744
Conducting Transportation.....	62,486,270	58,928,171	66,343,270
General Expenses.....	3,765,636	4,073,188	4,487,039
Total Expenses.....	\$107,304,142	\$120,405,440	\$131,034,784
Ratio to Earnings.....	73.04%	69.2%	69.44%
Net Receipts.....	\$39,614,171	\$53,550,776	\$57,698,709
Percentage to Capital Cost.....	2.61%	3.12%	3.12%
Gross Receipts per Mile.....	\$6,398	\$7,033	\$7,430
Gross Expense per Mile.....	4,672	4,868	5,158
Number of Employees.....	106,404	123,768	141,224
Compensation.....	\$60,376,607	\$67,167,793	\$74,613,738
Proportion of Gross Earnings.....	41.10%	38.82%	39.53%
Proportion of Operating Expenses.....	56.27%	55.78%	56.94%
Average per Employee per Year.....	\$569	\$503	\$528

*The net capital liability of the Canadian railways, exclusive of Government owned roads, in 1911 was \$1,398,089,701 or \$55,829 per mile, which is far below their "capital cost."

In 1911 the railways of Canada paid \$1,792,390. In Nova Scotia and New Brunswick they are exempt from taxation.

RAILWAYS OF THE UNITED KINGDOM.

STATISTICS OF MILEAGE, CAPITALIZATION, AND TRAFFIC FOR THE YEARS 1907,
1909 AND 1910.

	1907	1909	1910
Length of Railways			
Double Track or More (miles).....	12,845	12,996	13,072
Single Track.....	10,263	10,284	10,315
Total Length of Line.....	23,108	23,280	23,387
All Tracks, Sidings, Etc.....	53,153	53,972	54,311
Total Capitalization (paid up).....	\$6,302,099,773	\$6,401,160,346	\$6,421,170,080
Capitalization per Mile of Line.....	272,723	274,964	274,562
Passenger Traffic			
Passengers Carried.....	1,259,481,000	1,265,081,000	1,300,728,583
Season Ticket Journeys.....	445,101,956	452,769,260	451,597,800
Passengers Carried 1 Mile.....	13,295,747,053	13,399,232,028	13,731,760,000
Average Journey (miles).....	7.8	7.8	7.8
Receipts from Passengers.....	\$205,036,740	\$204,296,797	\$210,612,890
Receipts per Passenger Mile (cents)...	1.54	1.525	1.534
Mail, Parcels, Luggage, Etc.....	\$43,213,632	\$45,071,850	\$46,313,570
Freight Traffic			
Minerals, Tons Carried.....	407,602,177	395,300,000	405,087,175
General Merchandise.....	103,284,939	104,605,000	109,341,631
Total Freight, Tons.....	515,887,116	499,905,000	514,428,806
Tons Carried 1 Mile.....	12,897,177,900	12,497,625,000	12,860,721,150
Average Haul (miles).....	25	25	25
Receipts from Freight.....	\$298,058,610	\$289,653,988	\$299,397,860
Receipts per Ton Mile (cents).....	2.31	2.32	2.328
Miscellaneous Receipts.....	\$45,634,648	\$46,075,070	\$47,180,560
Total Receipts.....	\$591,943,630	\$585,097,705	\$603,509,880
Expenses of Operation.....	373,085,840	365,430,190	372,891,030
Ratio of Expenses to Earnings.....	63.0	62.4	61.8
Net Receipts.....	\$218,857,790	\$219,812,320	\$230,618,850
Percentage to Paid-Up Capital.....	3.47	3.43	3.59
Gross Receipts per Mile.....	\$25,616	\$25,133	\$25,805
Gross Expenses per Mile.....	16,165	15,699	15,945
Number of Employees.....	621,341	621,341	608,750
Total Compensation.....	\$158,116,560	\$156,225,173	\$158,932,400
Proportion of Gross Earnings.....	26.7	26.7	26.3
Proportion of Operating Expenses.....	42.4	42.6	42.6
Average per Employee per Year.....	\$254.47	\$251.45	\$261.10
Taxes included in Expenses.....	\$23,682,810	\$24,398,700	\$24,846,740

*No enumeration of employes was made between 1907 and Dec. 31, 1910; the last preceding, in 1904, gave a total of 581,664.

RAILWAYS OF GERMANY.

STATISTICS OF MILEAGE, COST OF CONSTRUCTION, AND TRAFFIC FOR THE YEARS
1906, 1909 AND 1910.

	1906	1909	1910
Length of State Railways (miles).....	32,050	34,058	34,547
Length of Private Railways.....	2,513	2,167	2,193
Total.....	34,563	36,235	36,740
Cost of Construction.....	\$3,613,493,706	\$4,048,810,560	\$4,163,615,519
Cost per Mile.....	104,548	111,737	113,324
Passenger Traffic			
Passengers Carried.....	1,209,224,072	1,469,639,916	1,540,872,110
Passengers Carried (one mile).....	17,189,336,940	20,862,117,120	21,948,393,727
Average Journey (miles).....	14.21	14.17	14.24
Receipts from Passengers.....	\$170,165,002	\$190,350,960	\$200,407,588
Receipts per Passenger per Mile (cents).....	0.99	.913	0.913
Freight Traffic			
Fast Freight and Express			
Tons Carried.....	3,791,769	4,195,098	4,708,317
Tons Carried One Mile.....	265,115,720	273,234,000	295,296,195
Average Haul (miles).....	69.91	65.1	62.71
Receipts from Same.....	\$16,924,080	\$17,471,520	\$19,118,701
Receipts per Ton Mile (cents).....	6.38	6.36	6.42
All Freight			
Tons Carried.....	455,144,382	491,024,070	531,527,817
Tons Carried One Mile.....	28,118,620,680	30,917,232,220	32,124,223,390
Average Haul (miles).....	61.78	61.3	60.4
Receipts from Freight.....	\$397,580,733	\$425,517,120	\$456,766,493
Receipts per Ton Mile (cents).....	1.41	1.41	1.41
Miscellaneous Receipts.....	\$63,151,060	\$66,433,200	\$71,368,311
Total Receipts.....	\$630,796,800	\$682,301,280	\$728,542,392
Expenses of Operation.....	407,174,400	481,728,720	495,125,338
Ratio Expenses to Earnings.....	64.5	70.6	67.96%
Net Receipts.....	\$223,622,400	\$200,572,560	\$233,417,054
Percentage on Cost of Construction..	6.18	5.09	5.74%
Gross Receipts per Mile.....	\$18,251	\$18,830	\$19,830
Gross Expenses per Mile.....	11,780	13,018	13,476
Number of Employes.....	648,437	691,087	700,370
Total Compensation.....	\$219,390,932	\$264,047,660	\$271,836,773
Proportion of Gross Earnings.....	34.78	38.7	37.3%
Proportion of Operating Expenses.....	53.88	54.8	54.8%
Average per Employe per Year.....	\$338.35	\$382.10	\$388.17

*The official statistics for Germany for the year 1910 only reached Chicago on April 10, 1912, in time for insertion here but not for use in the body of the report where those given relate to the preceding year.

XV GROWTH OF RAILWAYS

In three-quarters of a century American railways from small beginnings in Pennsylvania in 1827, Maryland in 1828, South Carolina in 1830, and New York and Massachusetts in 1831, show the following remarkable growth by decades:

PROGRESS OF RAILWAYS IN THE UNITED STATES SINCE 1835.

States	1835	1840	1850	1860	1870	1880	1890	1900	1910#
Alabama.....	46	46	75	743	1,429	1,851	3,148	4,219	5,022
Arkansas.....				38	256	896	2,113	3,341	5,135
California.....				23	925	2,220	4,148	5,744	7,655
Colorado.....					157	1,531	4,154	4,587	5,519
Connecticut.....		102	402	601	742	954	1,007	1,023	1,000
Delaware.....	16	39	39	127	224	280	328	346	335
Florida.....			21	402	446	530	2,390	3,272	4,370
Georgia.....		185	643	1,420	1,845	2,535	4,105	5,639	7,020
Idaho.....						220	941	1,261	2,168
Illinois.....			111	2,799	4,823	7,955	9,843	10,997	11,876
Indiana.....			228	2,163	3,177	5,454	5,891	6,469	7,420
Iowa.....				655	2,683	5,235	8,347	9,180	9,733
Kansas.....					1,501	3,439	8,806	8,719	9,007
Kentucky.....	15	28	78	534	1,017	1,598	2,694	3,059	3,518
Louisiana.....	40	40	80	335	479	633	1,658	2,824	5,469
Maine.....		11	245	472	786	1,013	1,313	1,915	2,248
Maryland and D. C.....	117	213	259	386	671	1,012	1,168	1,407	1,413
Massachusetts.....	113	301	1,035	1,264	1,480	1,893	2,094	2,118	2,109
Michigan.....		50	342	779	1,638	3,931	6,789	8,193	8,985
Minnesota.....					1,072	3,108	5,466	6,942	8,669
Mississippi.....			75	862	990	1,183	2,292	2,919	4,413
Missouri.....				817	2,000	4,011	5,897	6,867	8,078
Montana.....						48	2,181	3,010	4,207
Nebraska.....					1,812	2,000	5,274	5,684	6,067
Nevada.....					593	769	925	909	2,277
New Hampshire.....		53	467	661	736	1,015	1,133	1,239	1,246
New Jersey.....	99	186	206	560	1,125	1,701	2,034	2,237	2,255
New York.....	104	374	1,361	2,682	3,928	6,019	7,462	8,121	8,416
North Carolina.....		53	154	937	1,178	1,499	2,904	3,808	4,734
North Dakota.....					35	635	1,940	2,731	4,201
Ohio.....		30	575	2,946	3,538	5,912	7,719	8,774	9,128
Oklahoma.....						275	1,213	2,150	5,978
Oregon.....					159	582	1,269	1,723	2,279
Pennsylvania.....	318	754	1,240	2,598	4,656	6,243	8,307	10,277	11,084
Rhode Island.....		50	68	108	136	210	212	212	212
South Carolina.....	137	137	289	973	1,139	1,429	2,096	2,795	3,410
South Dakota.....					30	630	2,485	2,850	3,948
Tennessee.....				1,253	1,492	1,824	2,710	3,124	3,809
Texas.....				307	711	3,293	7,911	9,873	14,243
Utah.....					257	770	1,090	1,547	1,986
Vermont.....			290	554	614	912	913	1,012	1,081
Virginia.....	93	147	384	1,379	1,486	1,826	3,142	3,729	4,443
Washington.....						274	1,699	2,890	4,858
West Virginia.....					387	694	1,306	2,198	3,526
Wisconsin.....			20	905	1,525	3,130	5,468	6,496	7,328
Wyoming.....						472	941	1,228	1,600
Arizona.....						384	1,061	1,511	2,097
New Mexico.....						643	1,284	1,752	2,999
Dist. Columbia.....									36
Total.....	1,098	2,818	9,021	30,635	52,922	93,671	159,271	192,940	238,609

#Exclusive of switching and terminal companies—1614 miles in 1910.

GROWTH OF RAILWAYS OF THE WORLD.

In the following table is given the mileage of the principal countries in the world from the earliest date available to the latest:

Country	Miles of Road Completed									
	Opened	1840	1850	1860	1870	1880	1889	1899	1910†	1911‡
Great Britain...	1825	1,857	6,621	10,433	15,537	17,933	19,943	21,666	23,280	23,387
United States...	1827	2,818	9,021	30,626	52,922	93,296	160,544	.....	236,422	243,229
Canada.....	1836	16	66	2,065	2,617	7,194	12,585	17,250	24,731	25,400
France.....	1828	.....	1,714	5,700	11,142	16,275	21,899	26,229	29,364	30,119
Germany.....	1835	341	3,637	6,979	11,729	20,693	24,845	31,386	36,235	37,255
Belgium.....	1835	207	554	1,074	1,799	2,399	2,776	2,833	2,888	5,132
Austria (proper)	1837	.....	817	1,813	3,790	7,083	9,345	11,921	13,591	13,873
Russia in Europe	1838	.....	310	988	7,098	14,026	17,534	26,889	35,347	41,888
Italy.....	1839	13	265	1,117	3,825	5,340	7,830	9,770	10,425	10,425
Holland.....	1839	10	110	208	874	1,143	1,632	1,966	2,235	2,439
Switzerland....	1844	.....	15	653	885	1,596	1,869	2,342	2,791	3,034
Hungary.....	1846	.....	137	1,004	2,157	4,421	6,751	10,619	12,177	12,562
Denmark.....	1847	.....	20	69	470	975	1,217	1,764	2,121	2,121
Spain.....	1848	.....	17	1,190	3,400	4,550	5,951	8,252	8,961	9,272
Chili.....	1851	.....	.....	120	452	1,100	1,801	2,791	3,451	3,451
Brazil.....	1851	.....	.....	134	504	2,174	5,546	9,195	11,863	12,968
Norway.....	1854	.....	.....	42	692	970	970	1,231	1,608	1,845
Sweden.....	1856	.....	.....	375	1,089	3,654	4,899	6,663	8,321	8,554
Argentine Republic.....	1857	.....	.....	.....	637	1,536	4,506	10,013	14,111	18,166
Turkey in Europe.....	.....	.....	.....	41	392	727	1,024	1,900	1,967	2,100
Peru.....	.....	.....	.....	47	247	1,179	993	1,035	1,470	1,470
Portugal.....	.....	.....	.....	42	444	710	1,118	1,475	1,689	1,689
Greece.....	1869	.....	.....	.....	6	7	416	604	845	979
Uruguay.....	1869	.....	.....	.....	61	268	399	997	1,371	1,443
Mexico.....	1868	.....	.....	.....	215	655	5,012	8,503	14,845	14,990
Roumania.....	.....	.....	.....	.....	152	859	1,537	1,920	1,976	1,979
Australia*.....	.....	.....	.....	.....	.....	789	4,850	11,111	17,956	18,195
Japan.....	1874	.....	.....	.....	.....	75	542	3,632	5,130	5,130
British India...	1853	.....	.....	838	4,771	9,162	15,887	23,523	30,809	31,413
China.....	1883	.....	.....	.....	.....	.....	124	401	4,997	5,274
Africa.....	.....	.....	.....	.....	.....	583	2,873	5,353	19,207	20,758

*Including New Zealand.

†Or latest figures.

‡Includes Asiatic Railways.

The proportion of state to privately owned railways as given by Mr. Edwin A. Pratt in "Railways and Nationalization" 1908, was:

Company Owned Railways.....	389,000
State Owned Railways.....	161,000
Total.....	550,000

RECOMMENDATIONS

In conclusion I would reiterate the following recommendations:

RAILWAY STATISTICS.

In order to relieve official railway statistics of any color or prejudice, the Bureau of Railway Statistics and Accounts, now a division of the Interstate Commerce Commission, should be transferred to the Department of Commerce and Labor, and its compilations should deal only with operating companies. This separation of Commission and Statistics is necessary to save the Commission from being misled by statistics prepared to sustain preconceived notions of what the facts should be instead of what they are. Official statistics should be as colorless as the following statement of the expenses of the Commission from its organization to date:

EXPENSES OF THE COMMISSION 1888 TO 1911 INCLUSIVE.

1888.....	\$113,007	1896.....	\$234,941	1904.....	\$321,533
1889.....	149,453	1897.....	234,909	1905.....	330,739
1890.....	180,440	1898.....	237,358	1906.....	382,141
1891.....	214,844	1899.....	239,125	1907 ⊕.....	616,597
1892.....	221,745	1900.....	243,624	1908.....	736,530
1893.....	217,792	1901.....	255,979	1909.....	988,936
1894.....	209,250	1902.....	271,728	1910.....	1,163,336
1895.....	216,206	1903.....	298,842	1911.....	1,290,978

⊕Commission increased from five to seven members, and salaries raised from \$7,500 to \$10,000. This, however, only increased the outlay \$37,500 per annum.

ACCIDENTS.

In order to make prevention of accidents, and not hostility to the railways or the marketing of patent appliances, the paramount object of inquiring into their cause, investigation of important railway accidents in the United States should be vested by Congress in a Board of Inspectors copied after the practice so successfully followed for half a century in the United Kingdom:

One Chief Inspector,

Ten District Inspectors, one for each Interstate Commerce group, appointed from Engineer service of the United States Army, with the rank of Major. This would insure fitness and impartiality for the work and valuable experience in regard to railway operations to the Army Engineers.

Three Deputy Inspectors for each group.

Three Assistant Inspectors for each group.

Several groups might require additional deputy and assistant inspectors, and as many could get along with two of each class.

Enough money could be deducted from the Interstate Commerce Commission appropriation to pay these officials liberally, so as to secure competent service without crippling the legitimate work of the Commission.

Respectfully submitted,

SLASON THOMPSON.

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